



# Service Manual

• KE-1303QR



ORDER NO.  
**CRT1573**

CASSETTE CAR STEREO WITH FM/AM ELECTRONIC TUNER

## **KE-1303QR**

XMA/UC

## **KE-1800QR**

XMA/UC

## **KE-2800QR**

XMA/ES

## **KE-2850QR**

XMA/ES

## **KE-2800B**

XMA/EW

### Note:

- See the service manual KE-1818 (CRT1504) for the cassette mechanism description.

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## **1. SAFETY INFORMATION**

- UC Model

**CAUTION**

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

**WARNING**

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 252249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

- EW Model

**WARNING !**

Lithium batteries. Danger of explosion. Replacement must be done by qualified personnel and only by following the instructions given in the service manual.

This warning is stated on the product or in the operating instructions. When replacing the lithium batteries, follow the note below. Dispose of the used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.

The battery used in this device may present a fire or chemical hazard if mistreated. Do not recharge, disassemble, heat above 100°C or incinerate. Replace only with the same Part Number. Use of another battery may present a risk of fire or explosion.

Note: The lithium battery installation position is shown in the exploded view and the P.C. board pattern.

**ADVARSEL !**

Lithiumbatteri – Eksplorationsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

Denne varsel er angivet på produktet eller i brugsvejledningen. Ved udskiftning af lithium batterierne følges nedenstående anvisning.

Batterierne må kun udskiftes med batterier af samme type og mærke.

**VARNING**

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

Denna varning finns på apparaten eller i bruksanvisningen. Följ nedanstående anvisningar vid byte av lithiumbatterier. Batterierna får endast bytas ut mot lithiumbatterier av samma typ och fabrikat.

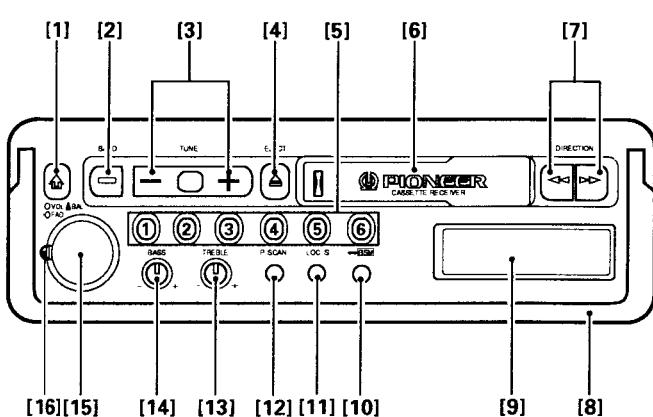


Fig. 1

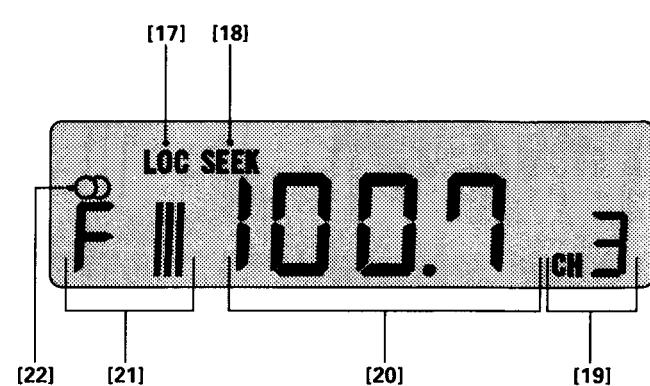


Fig. 2

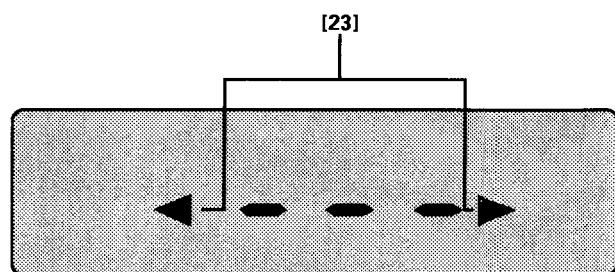


Fig. 3

## 2. USING THE RADIO

### Parts Identification

#### (Fig. 1)

- [2] Band
- [3] Tuning
- [5] Preset
- [9] Display
- [10] Best Stations Memory (BSM)
- [11] Local Station
- [12] Preset Scan
- [13] Treble
- [14] Bass
- [15] Volume / Balance / Power Switch
- [16] Fader

#### (Fig. 2)

- [17] Local Station
- [18] Seek
- [19] Preset Number
- [20] Frequency
- [21] Band
- [22] Stereo

### Listening to the Radio

- Before attempting operation...  
Set the fader control [16] to the left horizontal.
- 1. Turning the power switch [15] to the right causes power to switch ON and the current frequency to appear on the display [20].

- Since the set is designed preferentially for tape play, eject a cassette tape, if loaded, before operating the radio.
- 2. Press the button [2] to select the band.
- 3. Press both ends of the button [3] and the seek tuning indicator will appear on the display [18].
- 4. Press either the left or right side of the button [3] to tune in the desired frequency. (Pressing the right side will increase the frequency.)
- 5. Adjust the volume and balance. To adjust the balance, first pull the knob [15] until a click is heard. After setting to the desired level, push the knob [15] in again to its original position.
- 6. Adjust the tone [13], [14].
- To enter a frequency into the preset memory...
- 7. Hold down one of the buttons in Bank [5] for approximately 2 seconds. The frequency is stored in memory (assigned to the button in Bank [5] pressed) once the preset number stops flashing on the display [19].
- 6 FM1 frequencies, 6 FM2 frequencies, 6 FM3 frequencies and 6 AM frequencies can be entered.

### BSM (Best Stations Memory)

This function automatically locates stronger stations and automatically assigns their frequencies to the buttons in Bank [5], from strongest to weakest. It comes in handy when trying to find local stations while driving.

- 1. Press button [2] and select a band.
- 2. Holding down button [10] for about 2 seconds will start BSM search. At this time, "----" will flash on the display.
- 3. The frequency display will return once BSM search is complete, and frequencies are assigned to buttons 1 through 6 in Bank [5].
- At the end of the BSM search, the displayed frequency is that assigned to button 1 of Bank [5].
- If there are fewer than 6 strong stations in the area, some of the buttons in Bank [5] will not be assigned frequencies, so they will retain any frequencies assigned to them previously.
- BSM search may take as long as 30 seconds in areas where there are few strong stations.

**Fader Control**

This control is used to adjust the balance between the front and rear speakers when using a 4-speaker system. Turning the control [16] upward decreases the volume of the rear speakers, while turning it downward decreases the volume of the front speakers. With 2-speaker systems, set this control [16] to horizontal.

- A considerable amount of sound will continue to be produced from speakers of a 4-speaker system which have been cut by setting the fader control either to the front speakers or rear speakers. This is normal and does not indicate malfunction.

**Preset Scan Tuning**

This function lets you automatically monitor the stations assigned to the preset buttons. 1. Press the button [12], and the preset number [19] flashes.

Each station assigned to the buttons in Bank [5] will be automatically tuned in for about 8 seconds.

2. When you hear a station that you like, press button [12] again to cancel preset scan tuning and remain at that station.

**Adjusting Seek Sensitivity**

The seek tuning function of this tuner lets you select between a local setting for reception of strong stations only, and a DX (distant) setting for reception of weaker stations. The local setting also has four seek tuning sensitivity levels for FM and 2 levels for AM to match local conditions.

**Changing the Local Seek Sensitivity**

1. Use button [2] to select a band.
2. Hold down the button [11] for more than 2 seconds, and the display will show you the current local seek sensitivity for about 5 seconds.

3. While the local seek sensitivity remains on the display, press the (+) side of button [3] to increase the sensitivity level, and the (-) side to decrease the level as shown below.

FM : L-1 ≡ L-2 ≡ L-3 ≡ L-4

AM : L-1 ≡ L-2

The L-4 setting allows reception of only the strongest stations, while lower settings let you receive progressively weaker stations.

- The display of local seek sensitivity returns to the frequency when about 5 seconds have elapsed after the change of sensitivity.

**Switching between Local and DX**

Press button [11] to switch between Local and DX (distant) seek tuning. When "LOC" [17] is shown on the display, seek tuning is performed with the local seek sensitivity. Otherwise, seek tuning is performed with the DX seek sensitivity.

**Manual Tuning**

Use manual tuning when stations are too weak to be picked up by seek tuning.

1. Press both (+) and (-) sides of button [3] at the same time to clear "SEEK" [18].
2. Each press of the (+) side of button [3] increases the frequency in 0.2 MHz steps in the FM band, 10 kHz in the AM band. Pressing the (-) side of button [3] decreases the frequency. Holding down either side of button [3] changes the frequency at high speed.

### 3. USING THE TAPE DECK

**Parts Identification****(Fig. 1)**

- [4] Eject
- [6] Cassette Door
- [7] Fast Forward, Rewind / Direction Change
- [9] Display
- [13] Treble
- [14] Bass
- [15] Volume / Balance / Power Switch
- [16] Fader

**(Fig. 3)**

- [23] Direction

**About cassette tapes**

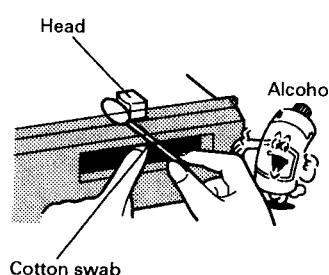
- Do not use tapes longer than C-90-type (90 min.) cassettes. Longer tapes can interfere with tape transport.
- Storing cassettes in areas directly exposed to sunlight or high temperatures can distort them and subsequently interfere with tape transport.



- Store unused tapes in a tape case where there is no danger of them becoming loose or being exposed to dust.

**Cleaning the head**

If the playback head becomes dirty, sound quality will suffer. Periodically (once or twice a month) clean the head with a cotton swab soaked with alcohol.

**Listening to a tape****• Before attempting operation...**

- Set the fader control [16] to the left horizontal.
1. Turning the power switch [15] to the right causes power to switch ON.
2. Loading a cassette tape into the load slot [6] causes playback to begin automatically.
3. Adjust the volume and balance. To adjust the balance, first pull the knob [15] until a click is heard. After setting to the desired level, push the knob in [15] again to its original position.
4. Adjust the tone [13], [14].
5. When tape playback reaches the end of the tape, playback will automatically switch from the side being played to the opposite side (i.e. Side A to Side B or vice versa) (Auto-reverse). To eject the tape during playback, press the button [4].
- A loose or warped label on a cassette tape may interfere with the eject mechanism of the unit or cause the cassette to become jammed in the unit. Avoid using such tapes or remove such labels from the cassette before attempting use.
- Do not try to eject the cassette immediately after insertion, as it will cause malfunction. Wait a few seconds.
- Loose tapes should be rewound with the aid of a pencil and unevenly wound tapes rewound with the use of the fast forward function.

## 4. CONNECTING THE UNITS

- Be sure to eject the tape when the vehicle's ignition is turned OFF. Leaving the tape in the unit can deform the pinch roller causing wow and flutter during tape playback.

### Changing Program

Push the fast forward and rewind buttons [7] together to switch from one side of the tape to the other (from Side A to Side B or vice versa).

### Using Fast Forward and Rewind

Press the fast forward button (the right side of button [7] shown in Fig. 1) to advance the tape at high speed and the rewind button (the left side of button [7]) for high speed return.  
In fast-forward, the tape automatically switches from one side to the other when it reaches the end of the tape, and begins play from the other side (Auto-reverse).  
In rewind, the tape automatically starts play after rewinding all the way back to the beginning of the tape (Auto-replay).  
When you release fast forward / rewind, lightly press button [7] located on the opposite side of the one you pressed to fast forward or rewind.

#### Note:

- This unit is for vehicles with a 12-volt battery and negative grounding. Before installing it in a recreational vehicle, truck, or bus, check the battery voltage.
- To avoid shorts in the electrical system, be sure to disconnect the battery  $\ominus$  cable before beginning installation.
- Refer to the owner's manual for details on connecting the various cords of the power amp and other units, then make connections correctly.
- Secure the wiring with cable clamps or adhesive tape. To protect the wiring, wrap adhesive tape around them where they lie against metal parts.
- Route and secure all wiring so it cannot touch any moving parts, such as the gear shift, handbrake, and seat rails. Do not route wiring in places that get hot, such as near the heater outlet. If the insulation of the wiring melts or gets torn, there is a danger of the wiring short-circuiting to the vehicle body.
- Do not shorten any leads. If you do, the protection circuit may fail to work when it should.
- Never feed power to other equipment by cutting the insulation of the power supply lead of the unit and tapping into the lead. The current capacity of the lead will be exceeded, causing overheating.

### KE-1303QR, KE-2850QR

#### 2-speaker system (Fig. 4)

#### 4-speaker system (Fig. 5)

- Antenna jack
- Black (ground)  
To vehicle (metal) body.
- Red  
To electric terminal controlled by ignition switch (12 V DC) ON / OFF.
- Fuse holder
- Blue  
To system control terminal of the power amp or Auto-antenna relay control terminal (Max. 300 mA 12 V DC).
- Green
- Gray
- Green / red
- Gray / red
- Black
- Left speaker
- Right speaker
- Front / left speaker
- Front / right speaker
- Rear / left speaker
- Rear / right speaker
- Not connected to anything for 2-speaker system.

### KE-1800QR, KE-2800QR, KE-2800B

#### 2-speaker system (Fig. 6)

#### 4-speaker system 1 (Fig. 7)

#### 4-speaker system 2 (Fig. 8)

- Antenna jack
- Black (ground)  
To vehicle (metal) body.
- Red  
To electric terminal controlled by ignition switch (12 V DC) ON / OFF.
- Fuse holder
- Blue  
To system control terminal of the power amp or Auto-antenna relay control terminal (Max. 300 mA 12 V DC).
- Blue
- Rear out
- Red
- White
- Connecting cords with RCA pin plugs (sold separately)
- Power amp (sold separately)
- Green
- Gray
- Green / red
- Gray / red
- Black
- Left speaker
- Right speaker
- Front / left speaker
- Front / right speaker
- Rear / left speaker
- Rear / right speaker
- Not connected to anything for 2-speaker system.
- No connection in this type of system.

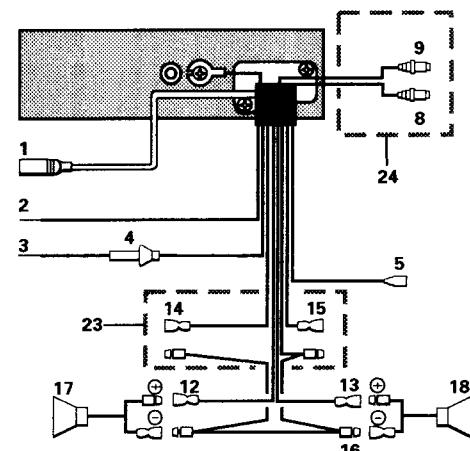


Fig. 6

### KE-1303QR, KE-2850QR

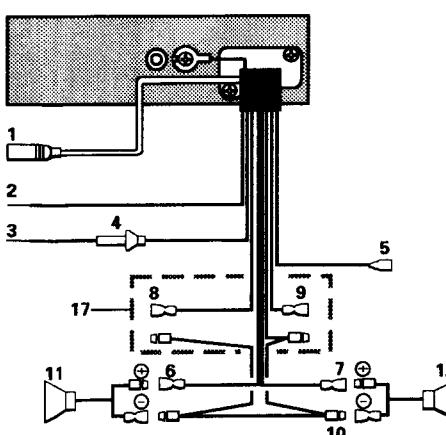


Fig. 4

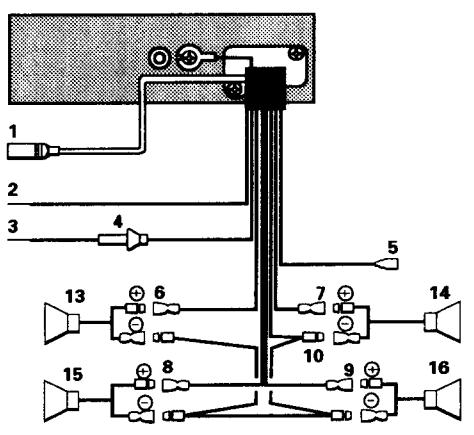


Fig. 5

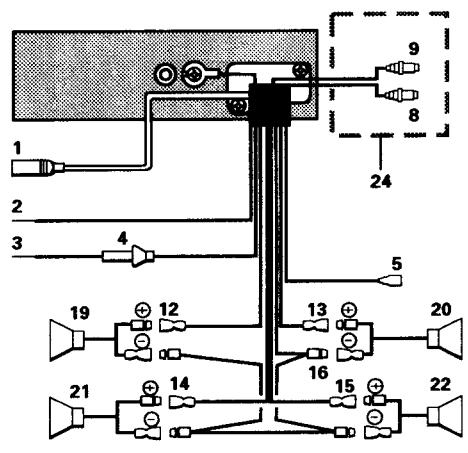


Fig. 7

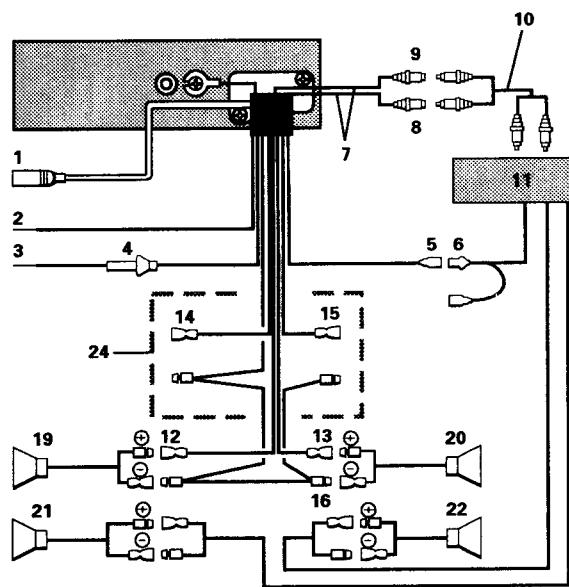


Fig. 8

- Connect to the front speakers with the green and gray leads. If you connect with the green/red and gray/red leads, this unit's fader control will not operate.

## 5. BLOCK DIAGRAM

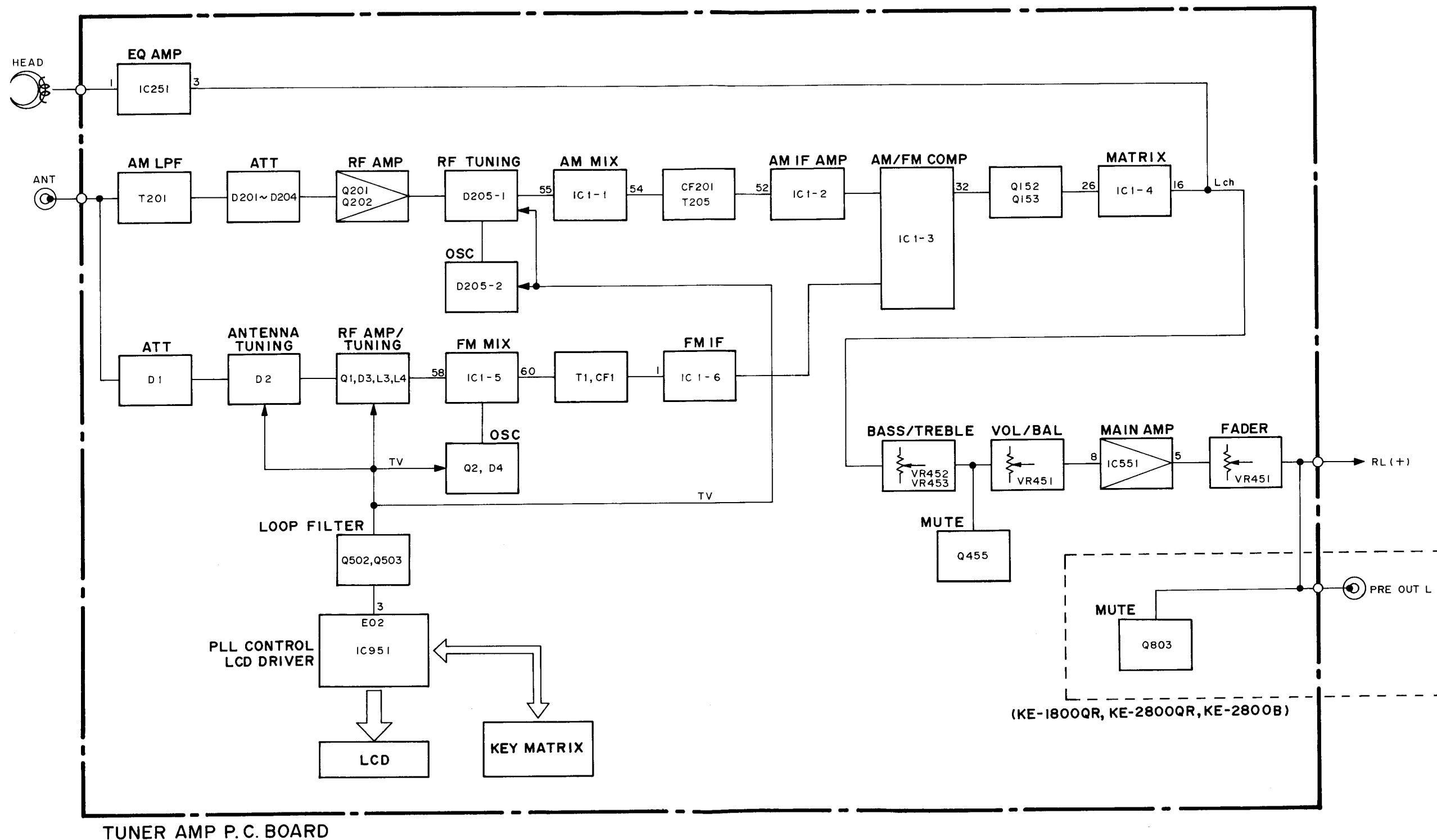


Fig. 9

## 6. DISASSEMBLY

### ● Removing the Case

1. Insert and turn a screwdriver to remove the case.
2. Raise the case to remove.

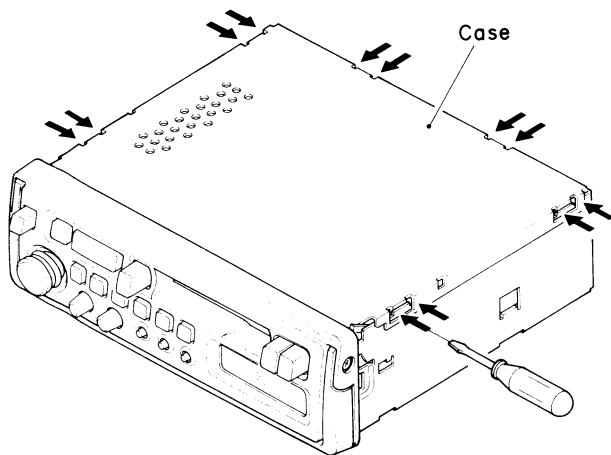


Fig. 10

### ● Removing the Handle

1. Remove the two screws, and then remove the handle.

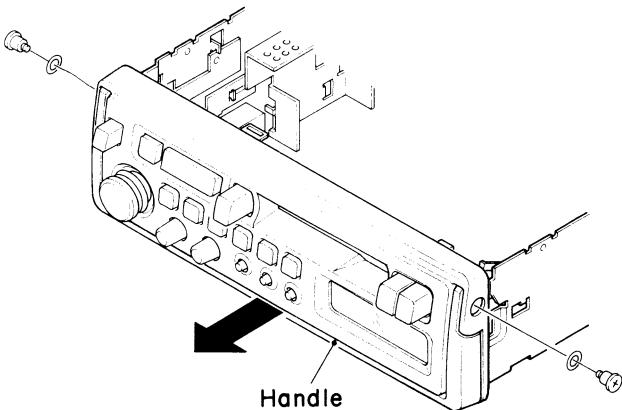


Fig. 11

### ● Removing the Grille Assy

1. Remove the two knobs.
2. Press the tabs at four locations, and then pull out the grille assy.

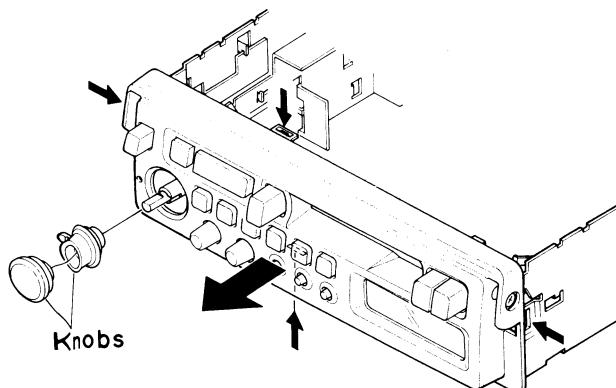


Fig. 12

### ● Removing the Cassette Mechanism Assy

1. Disconnect the connector.
2. Remove the four screws A and four screws B.
3. Remove the cassette mechanism assy.

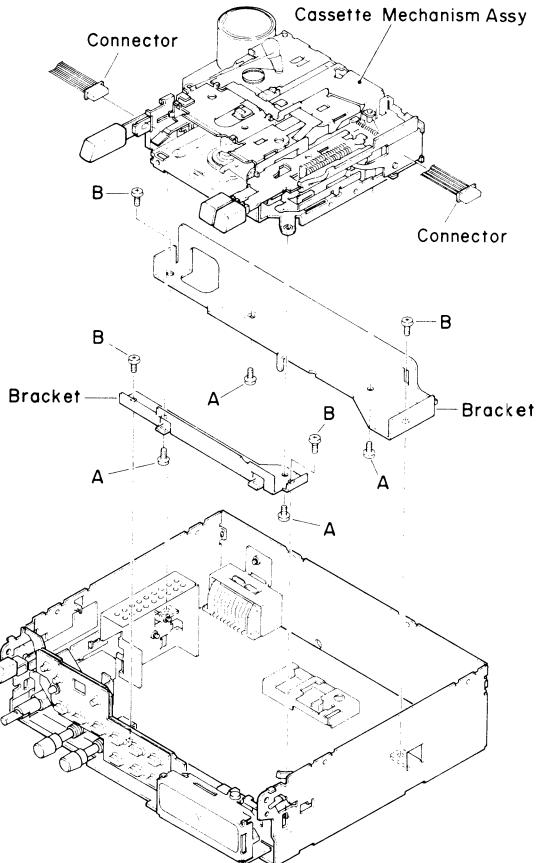


Fig. 13

### ● Removing the Tuner Amp Unit

1. Remove the four screws C.
2. Raise up tuner amp unit to remove it from the chassis unit.

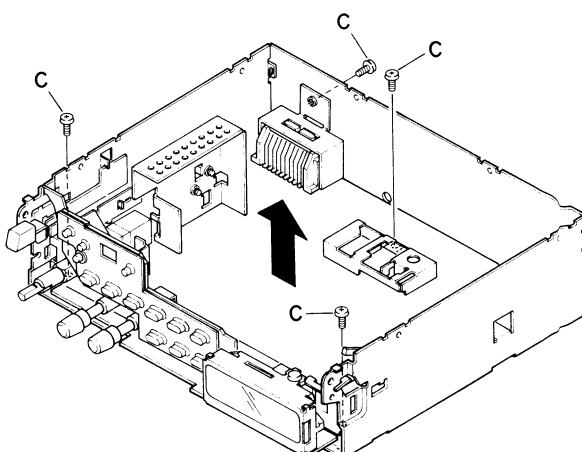


Fig. 14

## **7. ADJUSTMENT**

**NOTICE:**

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.

Z: Output impedance of SSG.

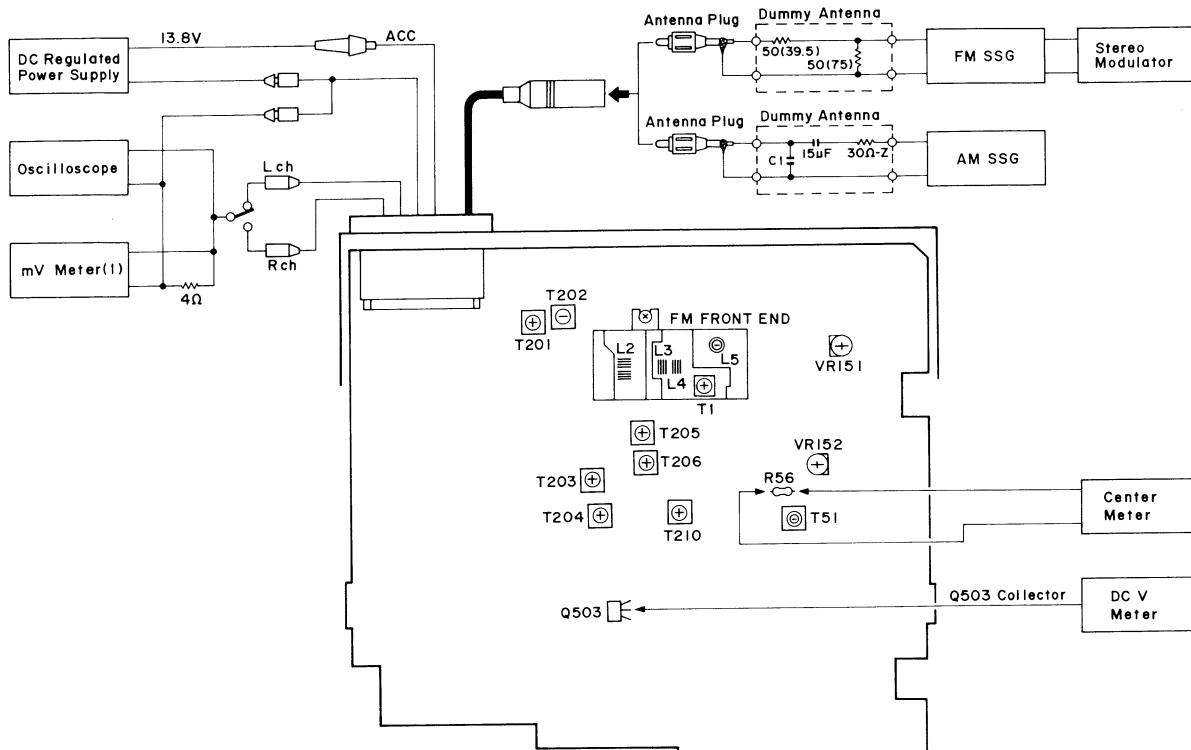


Fig. 15

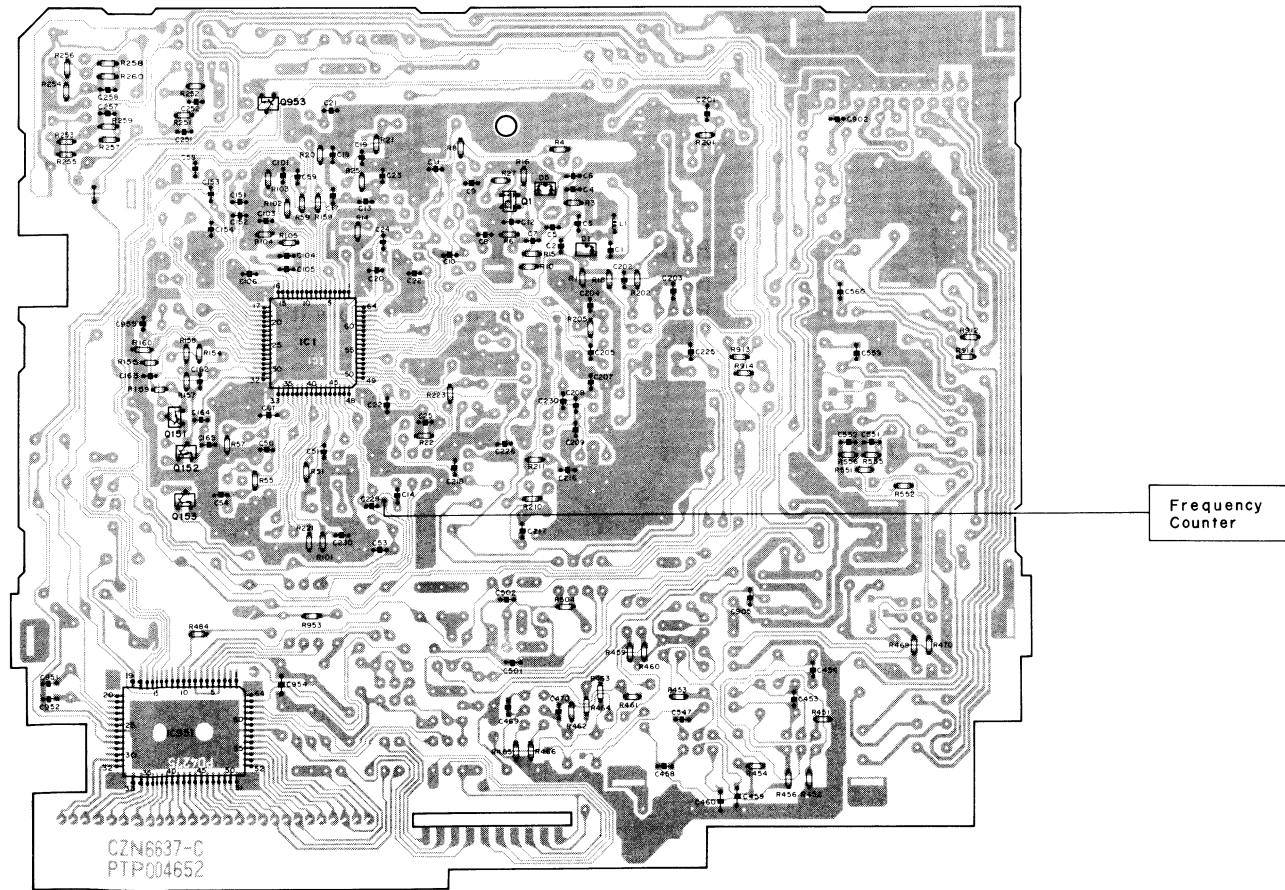


Fig. 16

# KE-1303QR/1800QR/2800QR/2850QR/2800B

## **FM ADJUSTMENT**

\*1 Stereo MOD.: Pilot=10%

\*2 Stereo MOD.: 1kHz, L+R=90%, Pilot=10%

	No.	FM SSG(400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dBf)			
Tuning Volt	1	—	—	107.9 (UC) 108.0 (ES)	L5	DC V Meter: $6.5 \pm 0.2V$
Tracking	1	98.1	15	98.1	L2, L4	mV Meter(1): Maximum
	2	98.1	15	98.1	T1	mV Meter(1): Maximum
IF	1	98.1 Unmodulated	65	98.1	T51	Center Meter: 0
Pilot Cancel	1	98.1 *1	65	98.1	VR151	mV Meter(1): Minimum (MPX Filter: OFF)
ARC	1	98.1 *2	40	98.1	VR152	mV Meter(1): Separation 5dB

## **AM ADJUSTMENT**

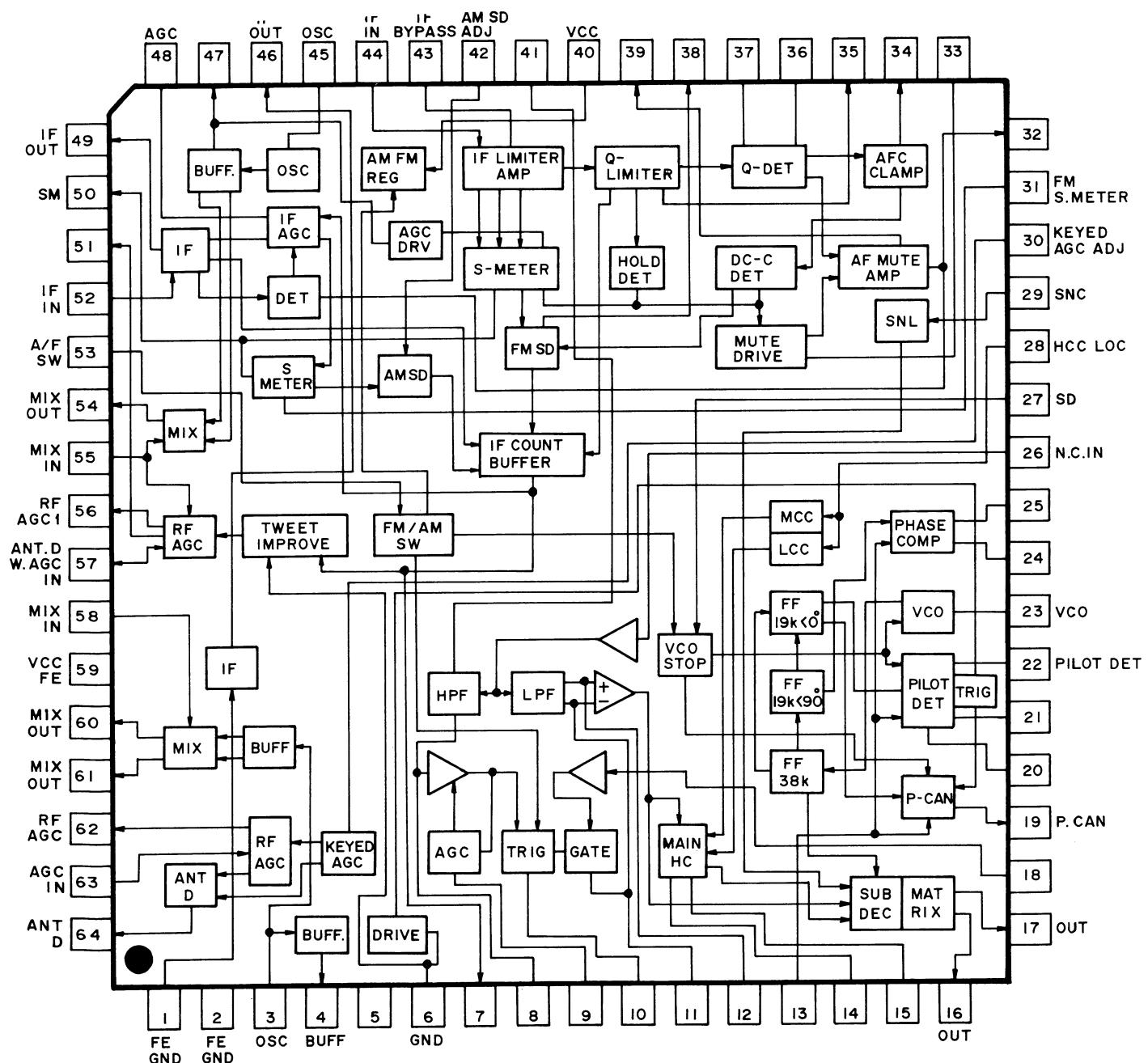
\*3: ES model when tuning step at 9kHz.

	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dB $\mu$ V)			
Tuning Volt	1	—	—	530 (531) *3	T210	DC V Meter: $0.9 \pm 0.2V$
Tracking	1	1,000 (999) *3	20	1,000 (999) *3	T203, 204, 205, 206	mV Meter(1): Maximum

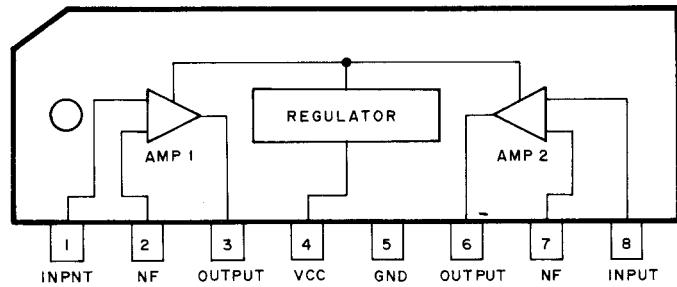
# KE-1303QR/1800QR/2800QR/2850QR/2800B

- ICs

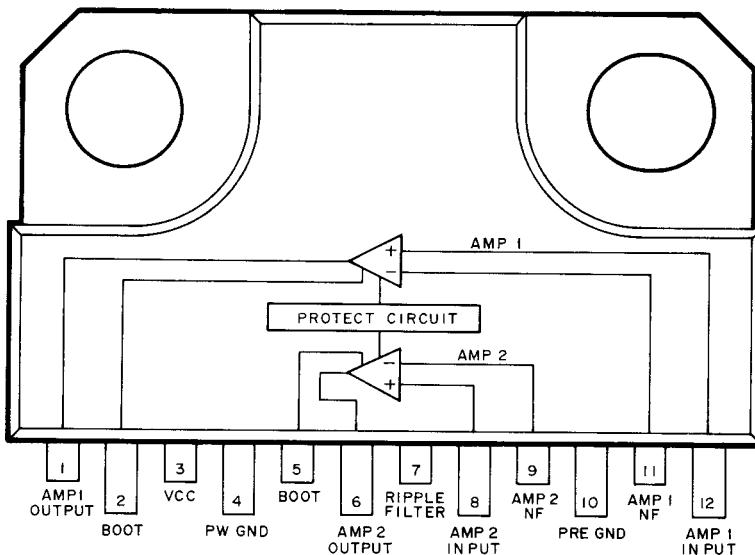
LA1883M



**LA3161P**



**TA7281P**



• Pin Function (PD4275B)

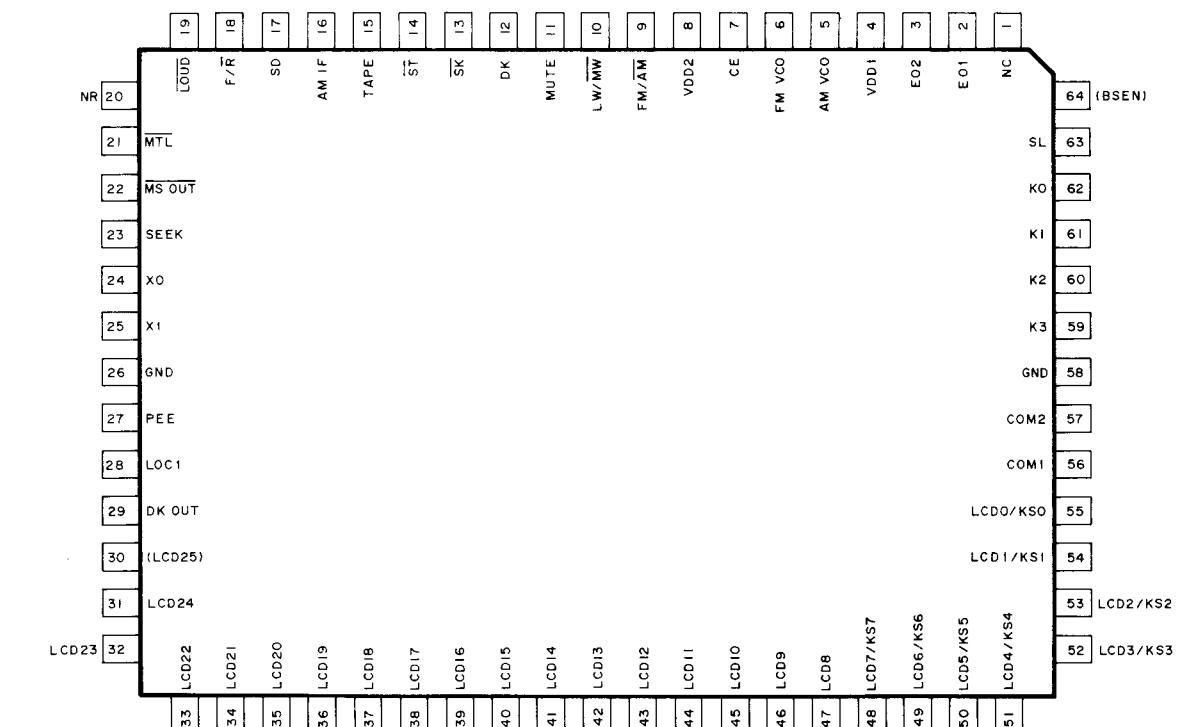
Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	NC		C	Not used
2 3	EO1 EO2	Output	C (3)	PLL error output pins
4 8	VDD1 VDD2			Device power supply pin
5	AMVCO	Input		AM local oscillator signal input pin
6	FMVCO	Input		FM local oscillator signal input pin
7	CE	Input		Chip enable input pin
9	FM/AM	Output	C	FM/AM band select pin "H": FM "L": AM
10	LW/MW	Output	C	Loop filter switching output pin "H": LW
11	MUTE	Output	C	Mute output pin "H": ON
12	DK	Input		DK signal input pin
13	SK	Input		SK signal input pin
14	ST	Input		Stereo broadcast detection signal input pin "L": Stereo indicator is displayed
15	TAPE	Input		Tape power ON/OFF input pin "H": ON
16	AMIF	Input		AM IF signal input pin
17	SD	Input		FM SD input "H": During broadcast reception
18	F/R	Input		Tape motion signal input pin "H": Forward
19	LOUD	Input		Loudness ON/OFF signal input pin "L": ON
20	NC	Output	C	Not used
21	MTL	Output	C	Tape METAL ON/OFF output pin "L": ON
22	MSOUT	Output	C	Tape MS ON/OFF output pin "L": ON
23	SEEK	Output	C	"H" level: SEEK, BSM, BSA and PSCAN
24 25	XO XI	Output Input	C	Quartz oscillator terminal
26	GND			GND terminal
27	PEE	Output	C	Alarm output pin
28	LOC1	Output	C	Halt sensitivity switching pin "L": DX SEEK (P. SCAN) "H": LOC SEEK
29	DKOUT	Output	C	Control by DK (terminal #12) input signal "H": DK input signal is detected as 125Hz
30	NC			Not used

Pin No.	Pin Name	I/O	Output Format	Function and Operation
31 I 55	LCD24   LCD0	Output	C	Segment signal output pins to LCD
48 I 55	KS7   KS0	Output	C	Key matrix strobe output pins
56 57	COM1 COM2	Output	C	Common signal output pins to LCD
58	GND			Ground
59 I 62	K3   K0	Input		Key matrix return input pins
63	SL	Input		AM station level analog input pin
64	NC		C	Not used

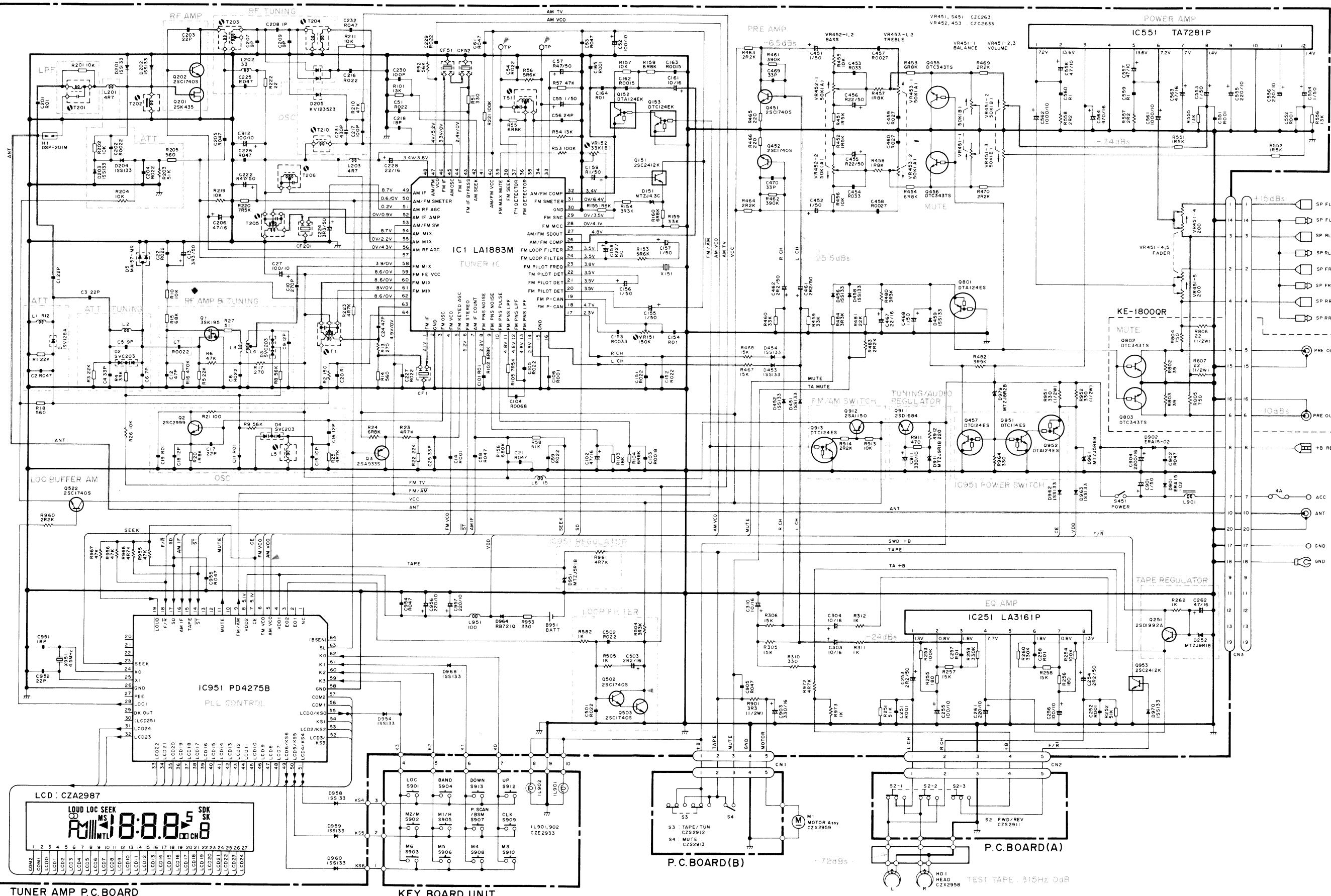
Output format	Meaning
C	C-MOS
C (3)	C-MOS (3 State)

IC's marked by \* are MOS type.  
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

\*PD4275B



### **3. SCHEMATIC CIRCUIT DIAGRAM (KE-1303QR/KE-1800QR)**

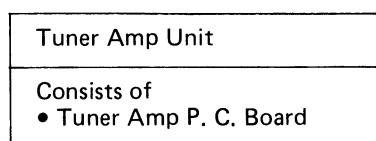


7

8

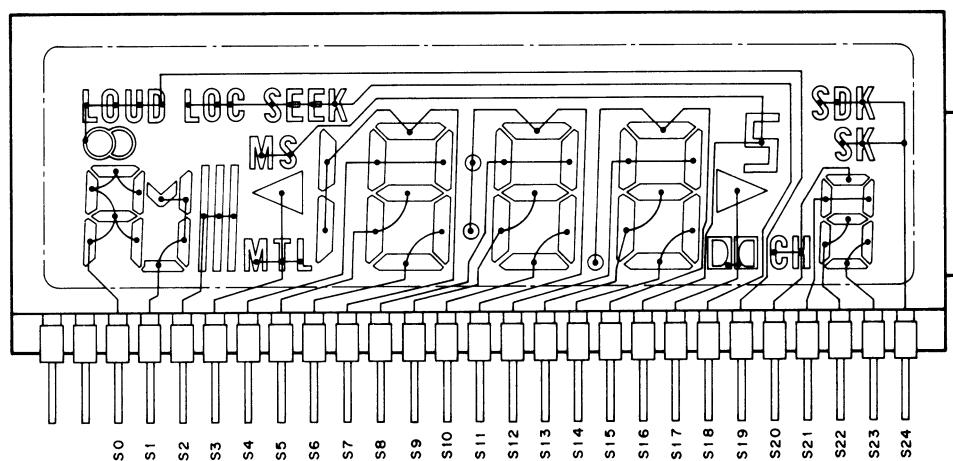
9

A



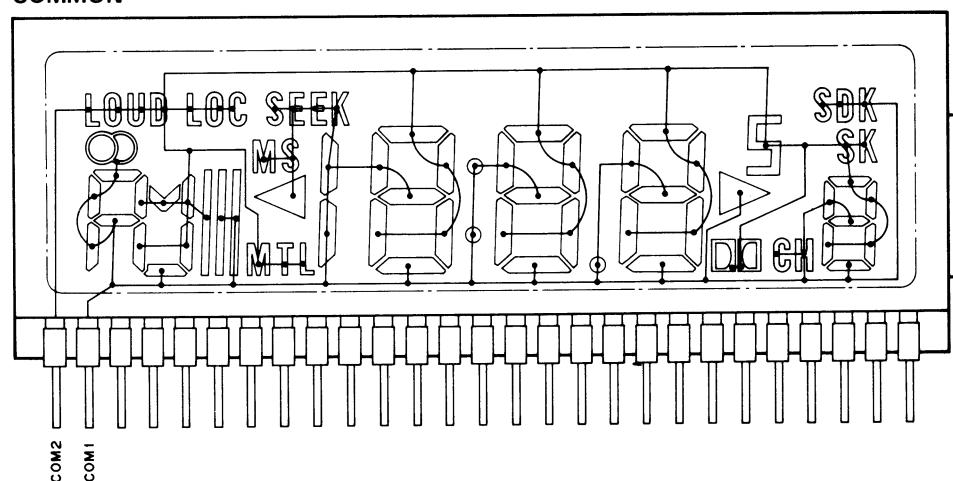
- LCD (CZA2987)

#### SEGMENT



B

#### COMMON



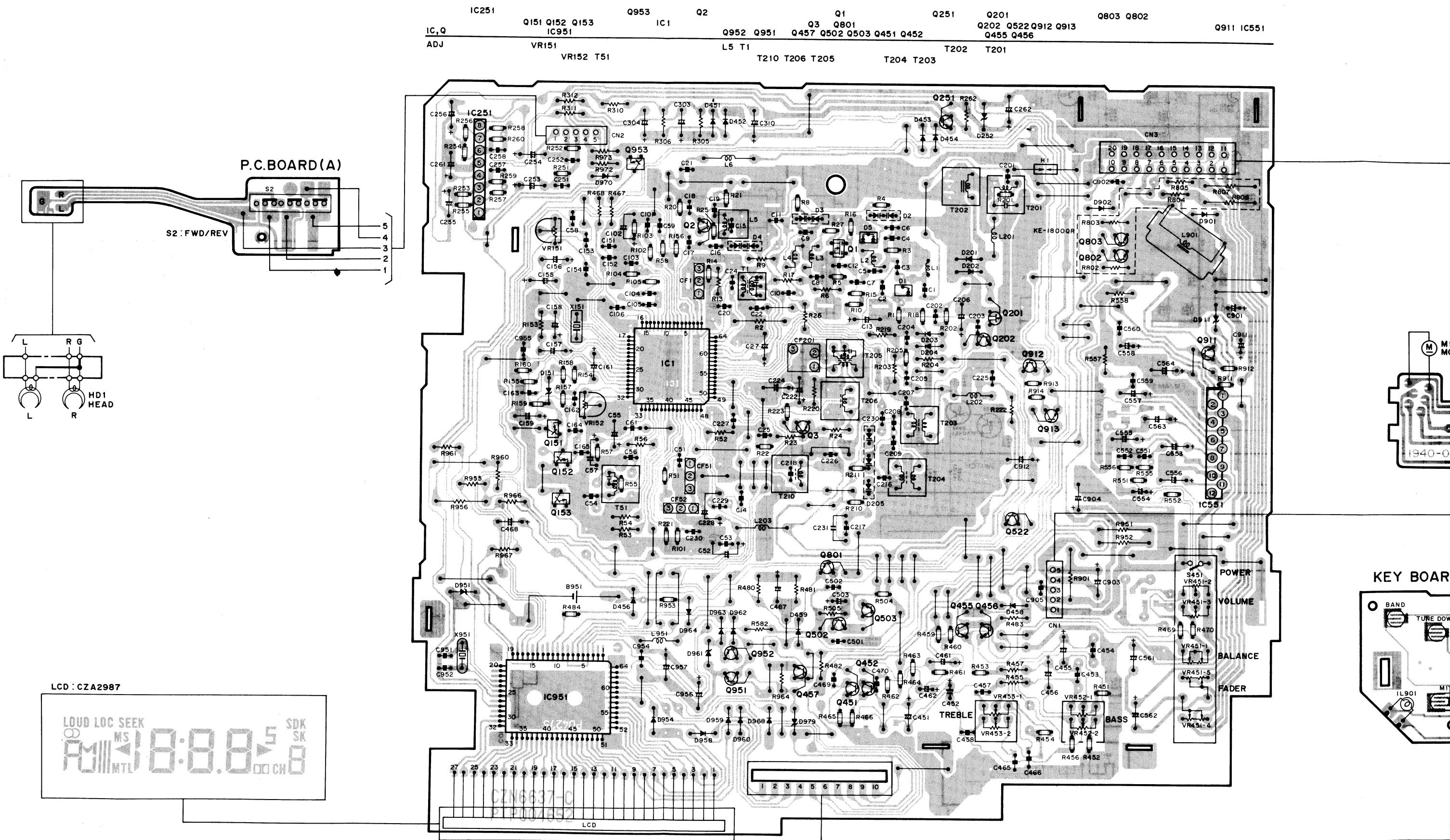
C

D

Fig. 17

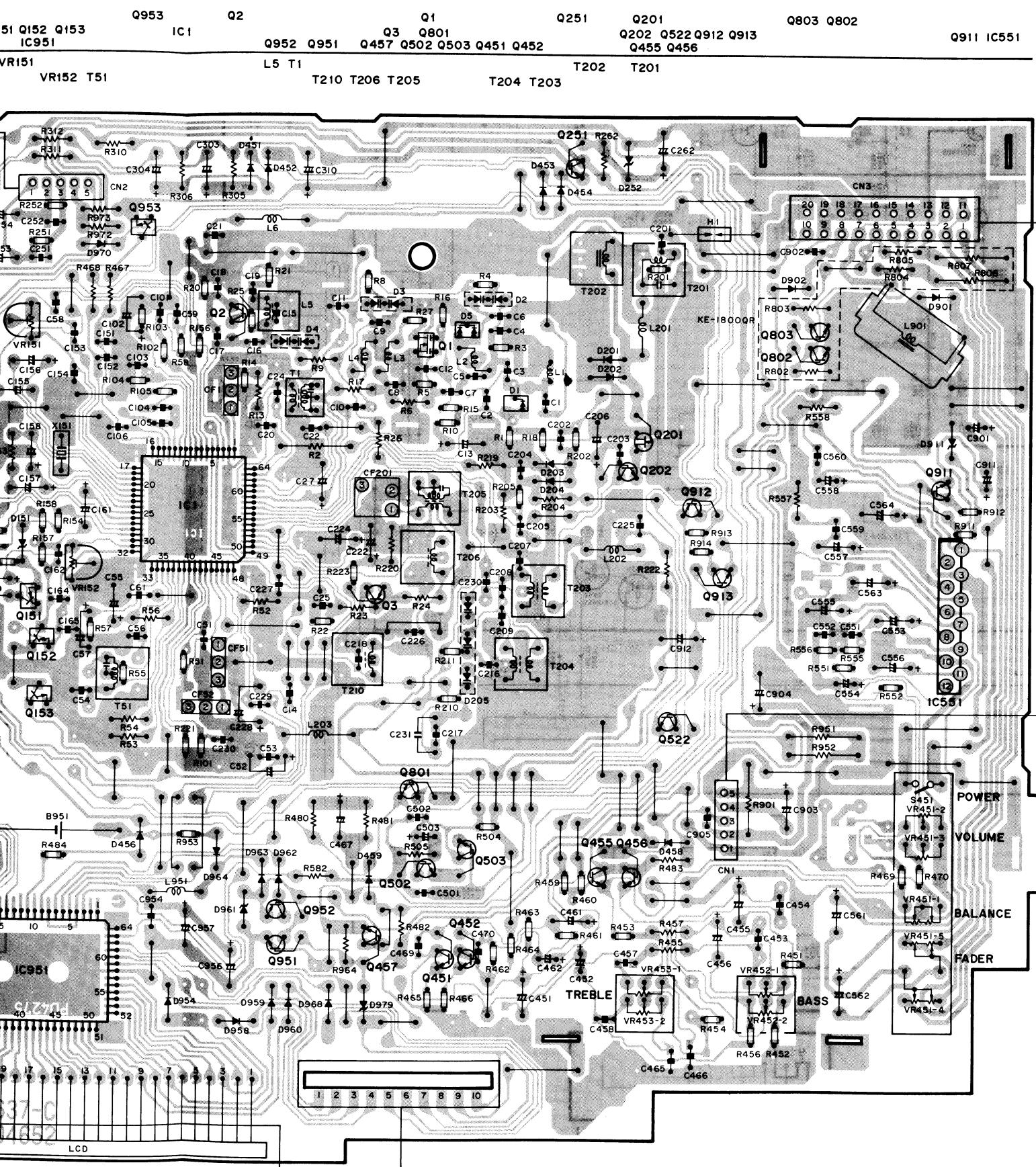
## 9. CONNECTION DIAGRAM (KE-1303QR/KE-1800QR)

TUNER AMP P.C. BOARD

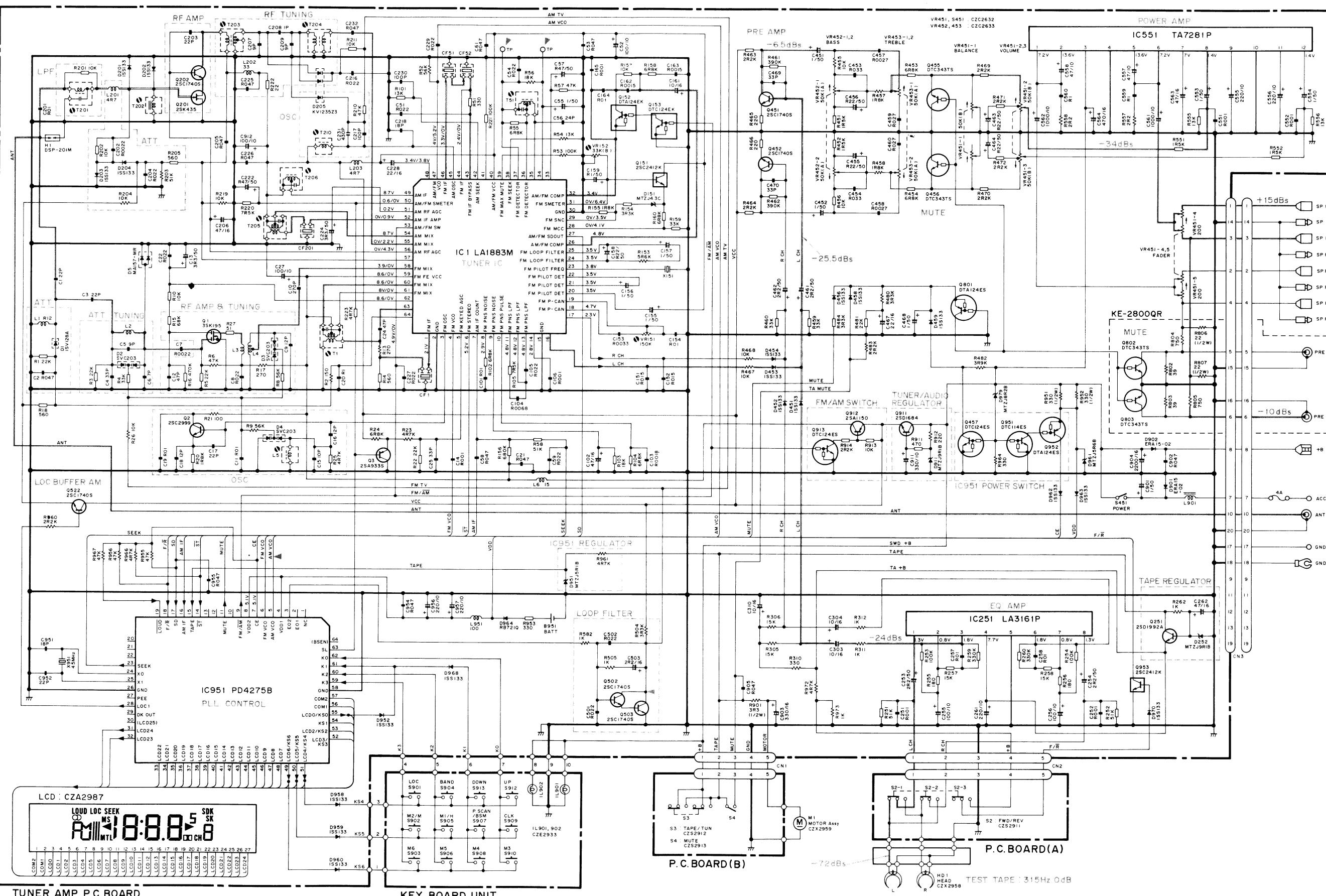


R)

## P.C. BOARD



## 10. SCHEMATIC CIRCUIT DIAGRAM (KE-2800QR/KE-2850QR)

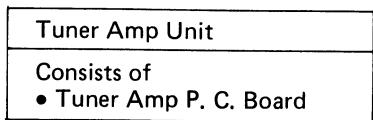


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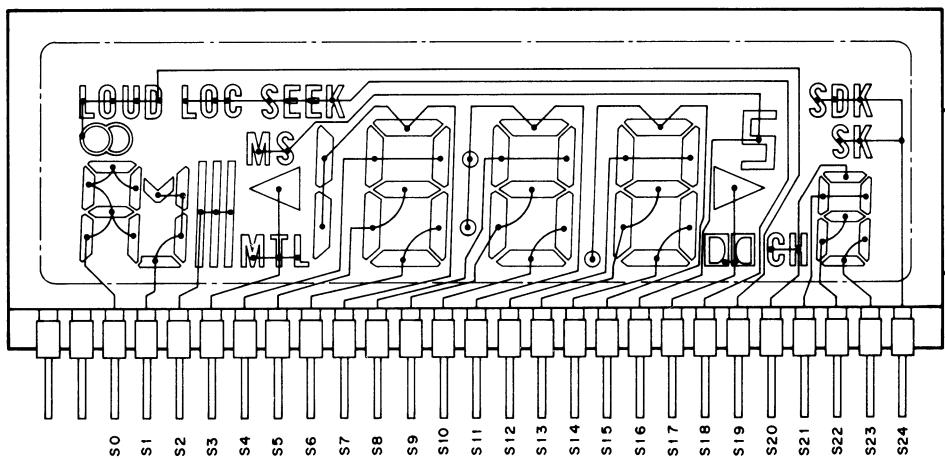
9

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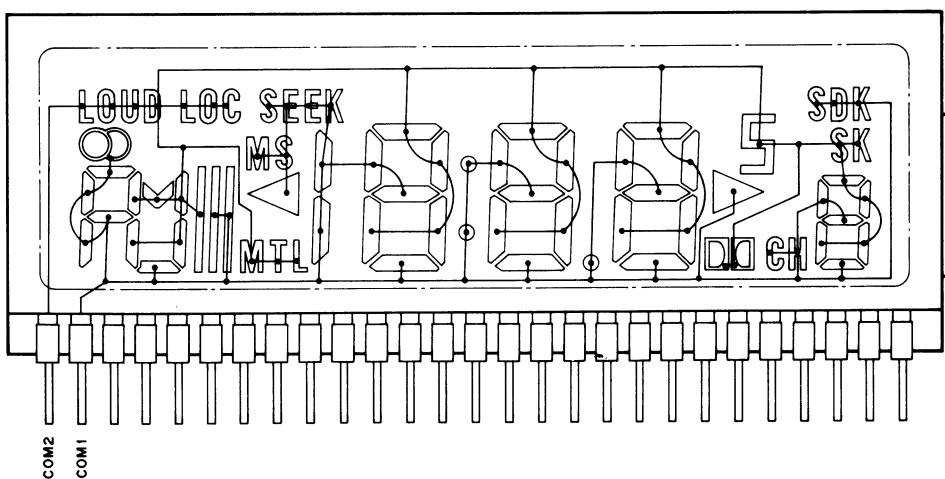
- LCD

#### SEGMENT



B

#### COMMON



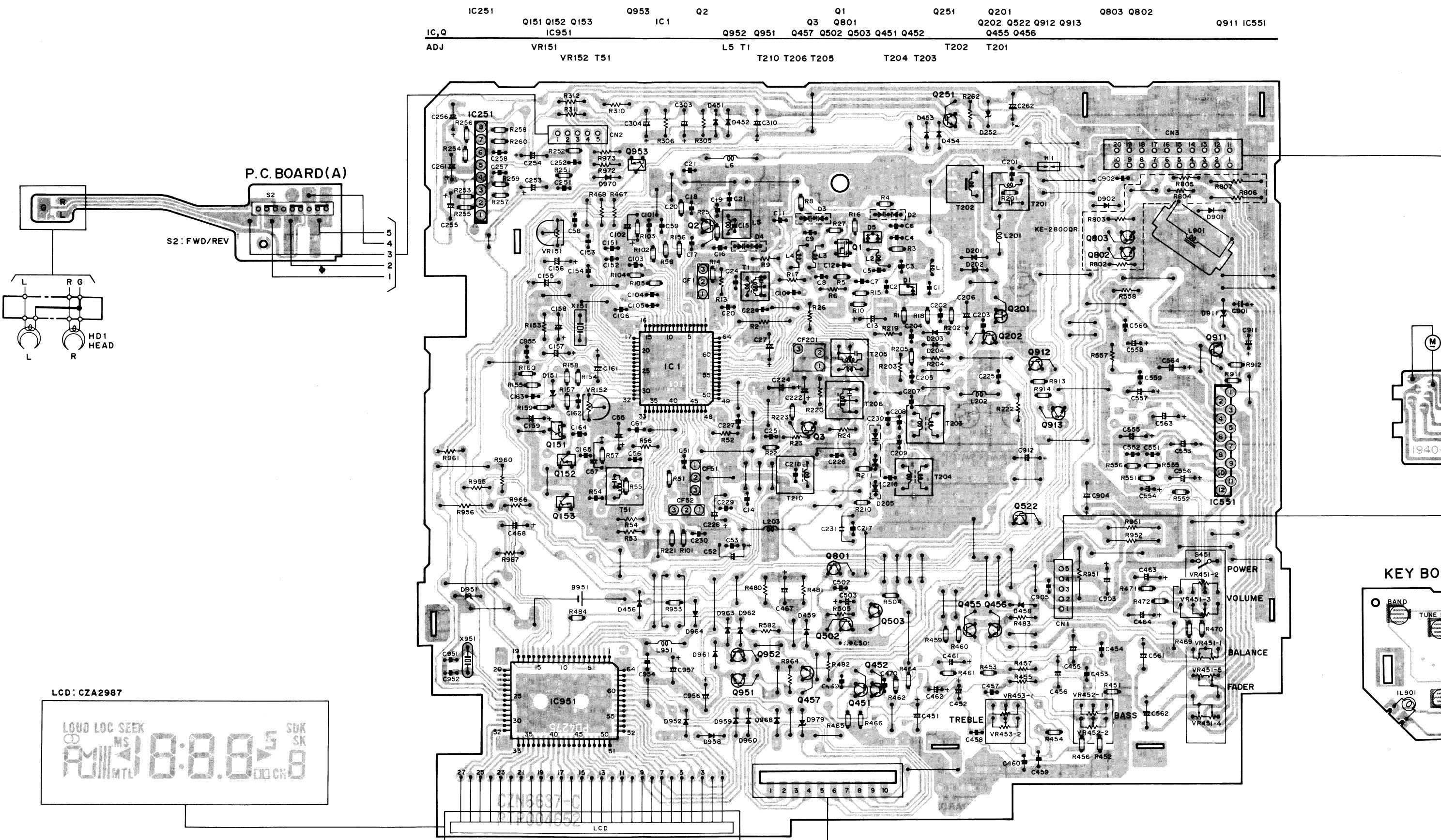
C

D

Fig. 19

## 11. CONNECTION DIAGRAM (KE-2800QR/KE-2850QR)

TUNER AMP P.C. BOARD



# KE-2800QR/2850QR

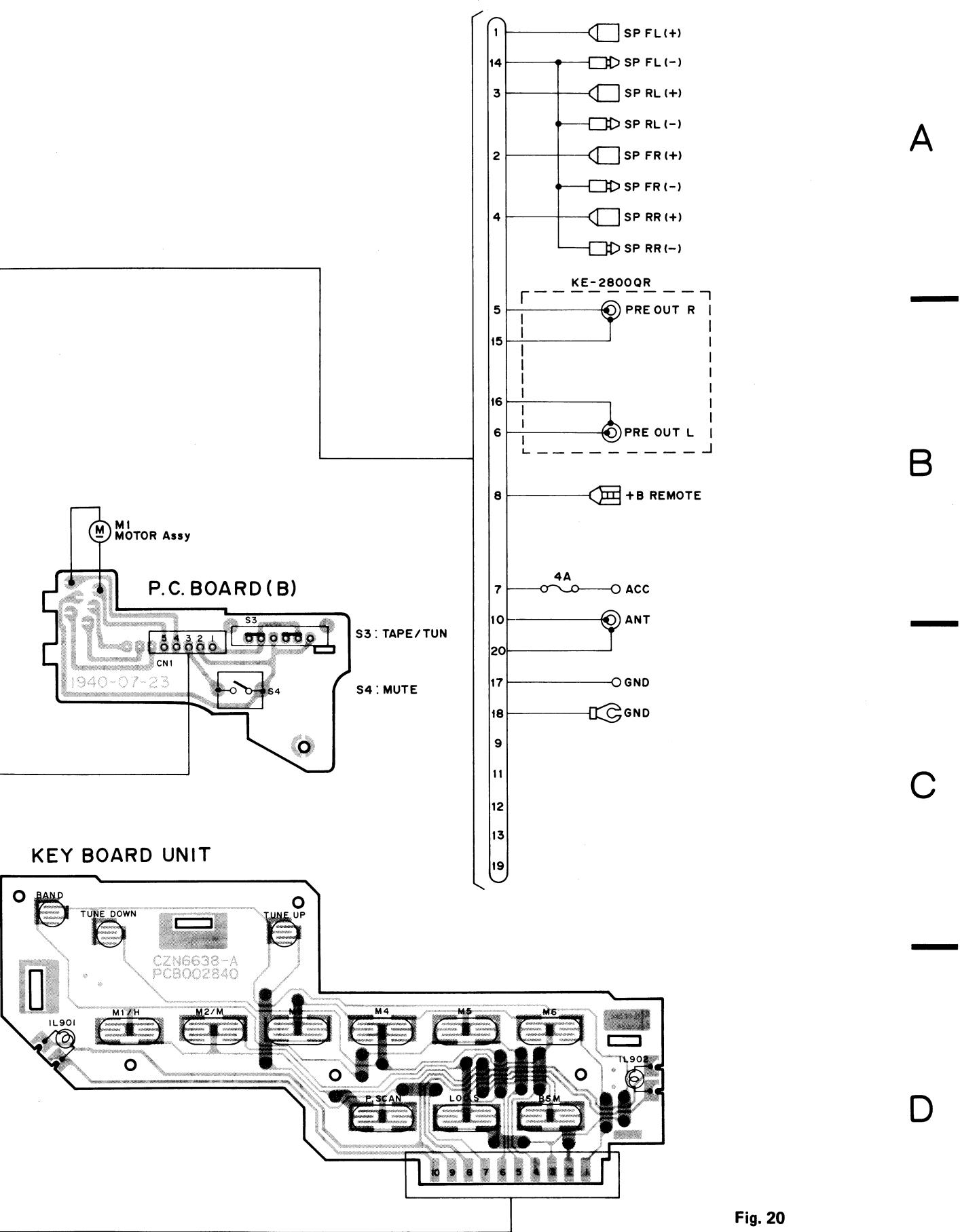
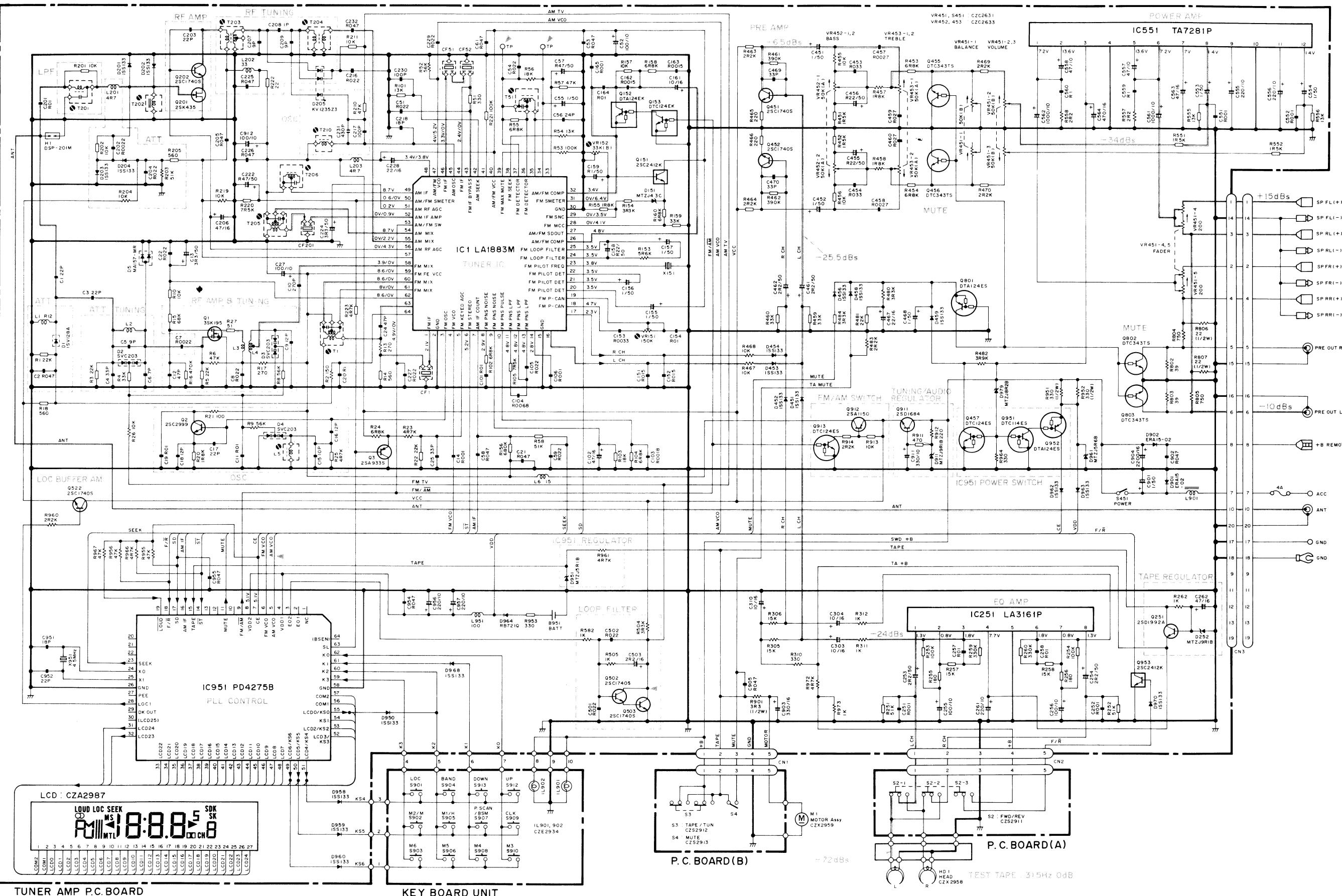


Fig. 20

## 12. SCHEMATIC CIRCUIT DIAGRAM (KE-2800B)

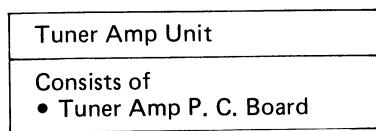


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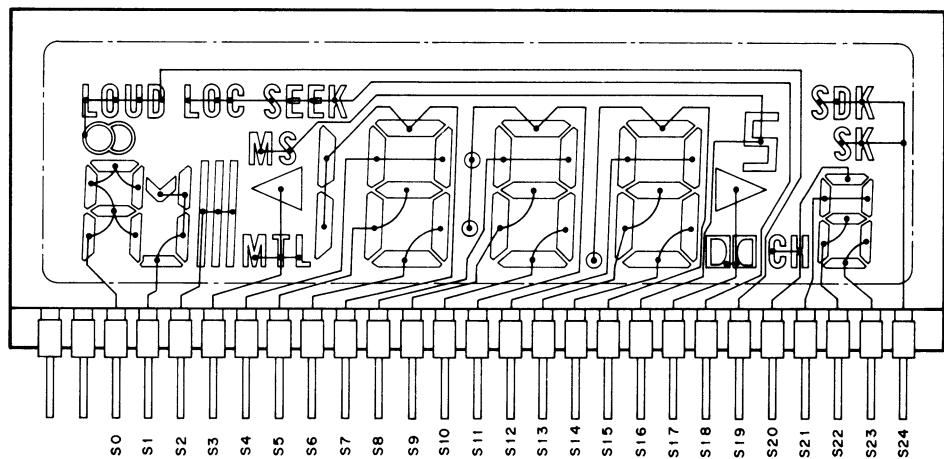
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A



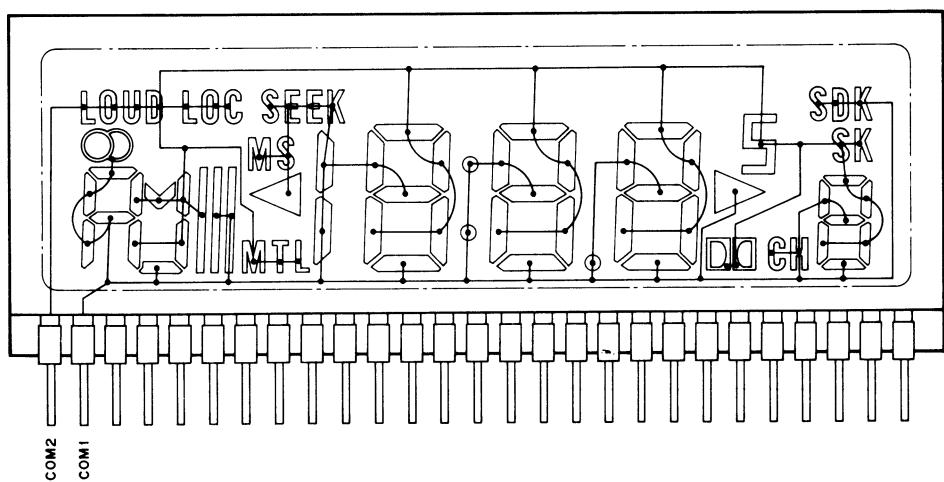
- LCD (CZA2987)

#### SEGMENT



B

#### COMMON



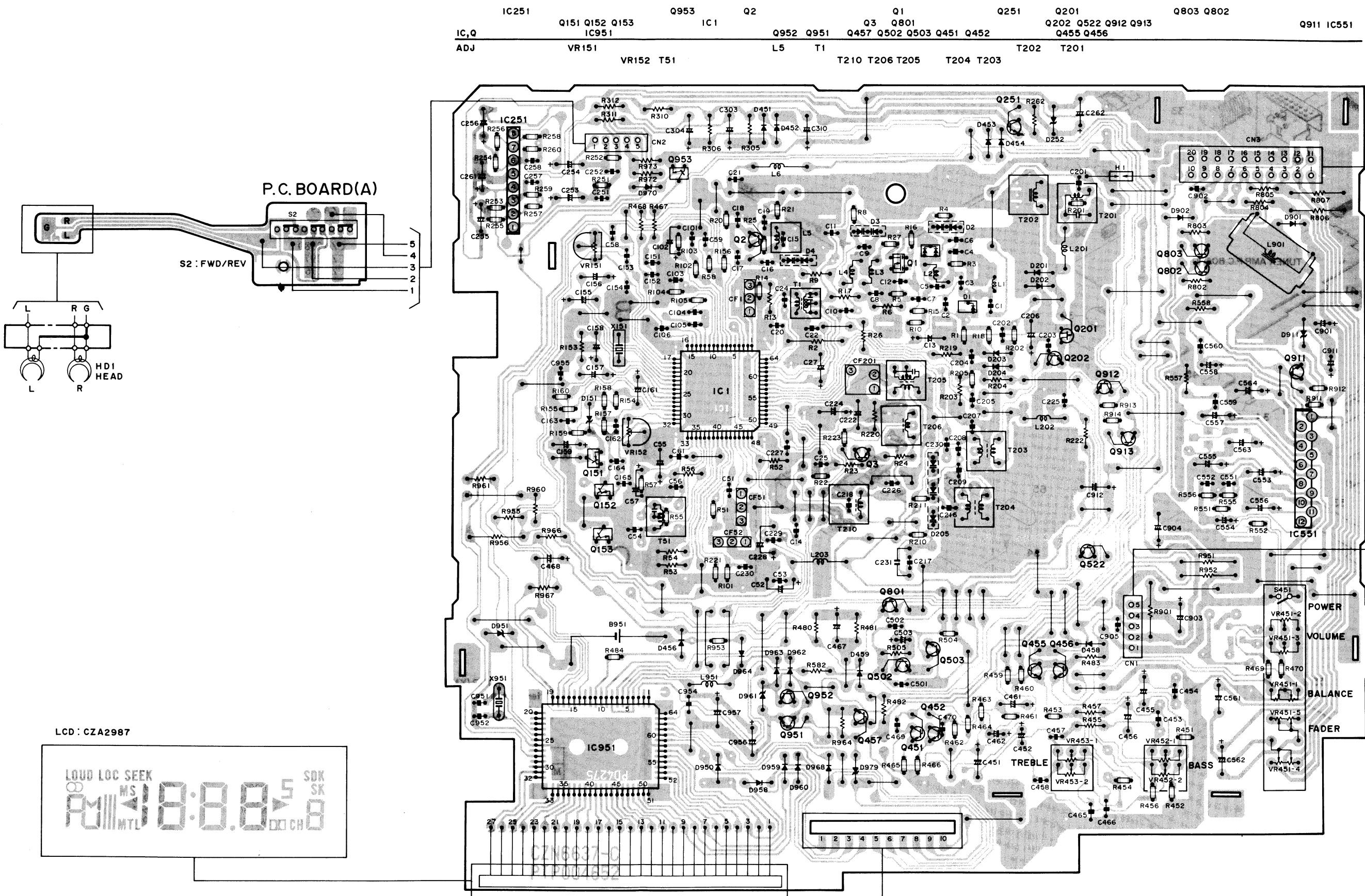
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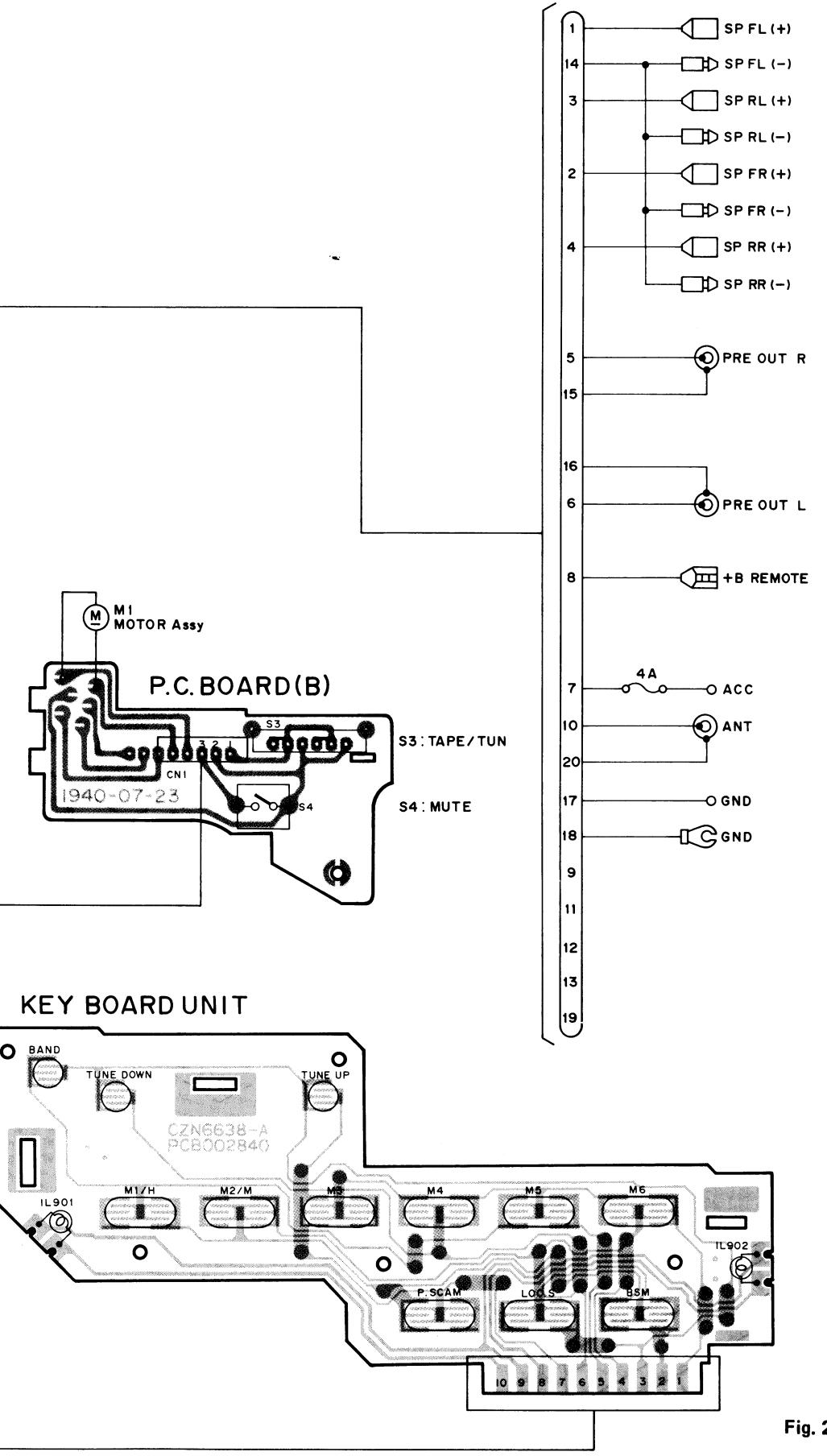
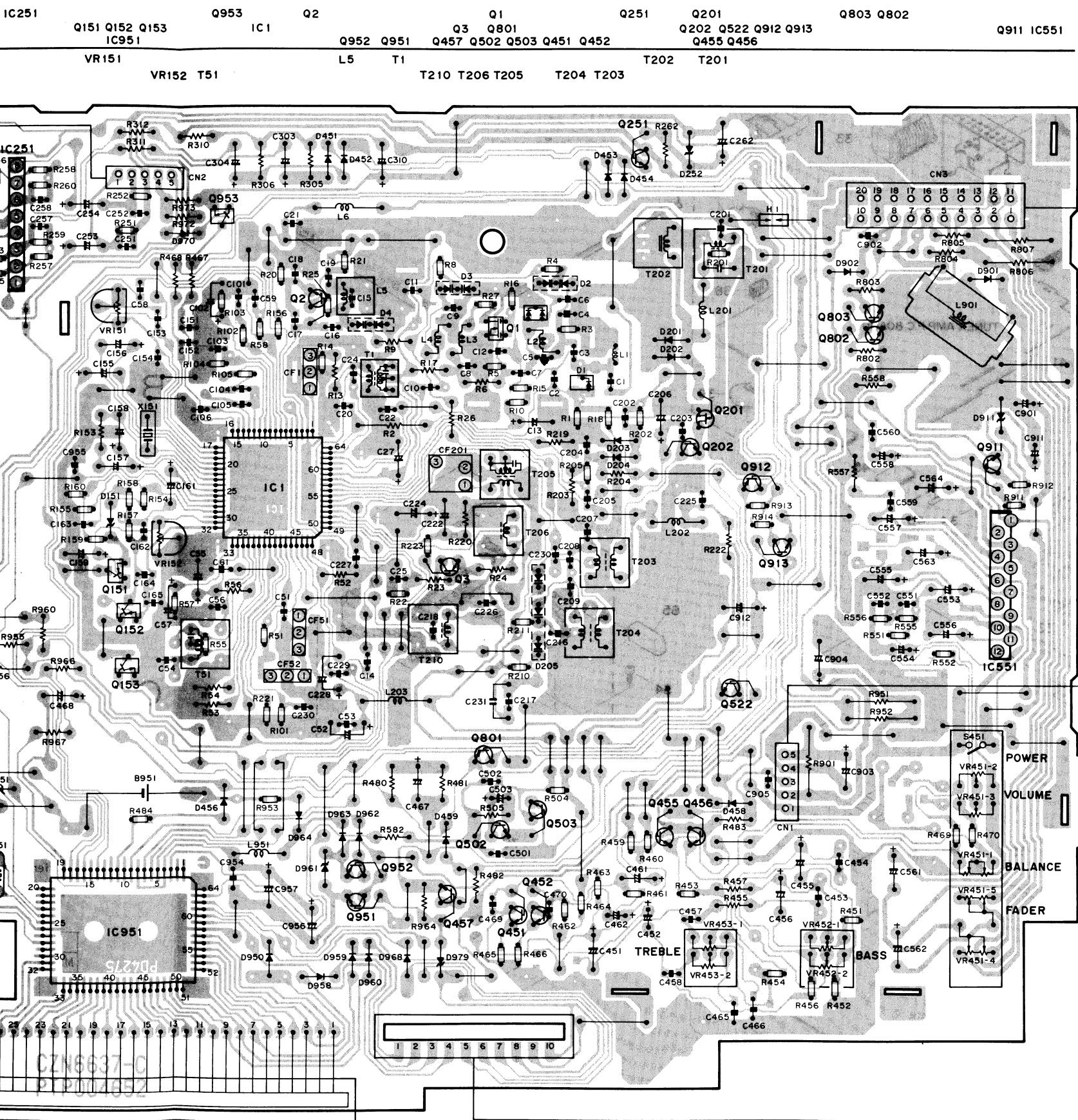
Fig. 21

### 13. CONNECTION DIAGRAM (KE-2800B)

TUNER AMP P.C.BOARD



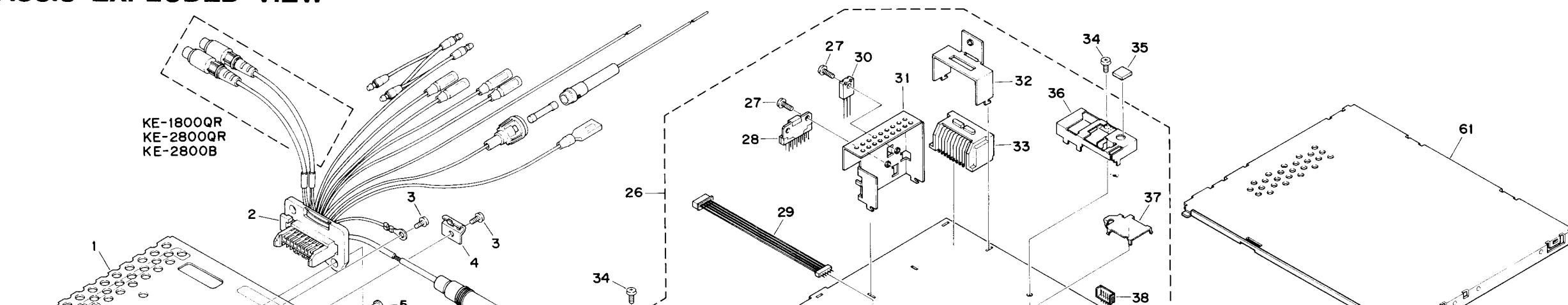
## INNER AMP P.C. BOARD



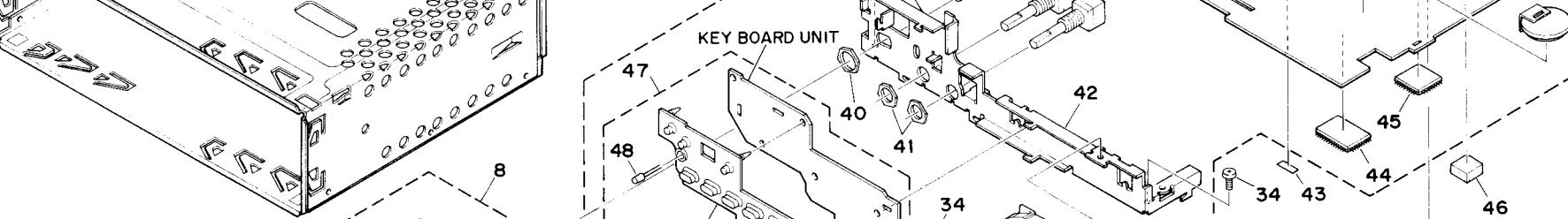
**Fig. 22**

## 14. CHASSIS EXPLODED VIEW

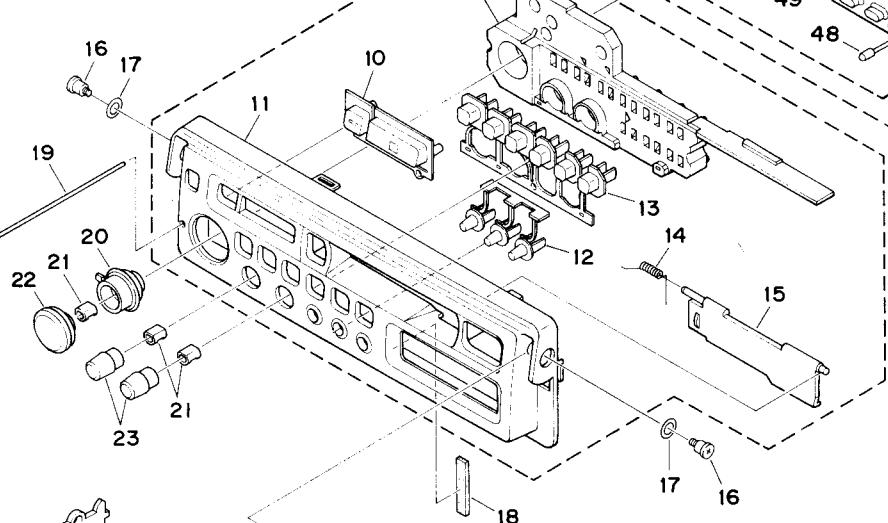
A



B



C



D

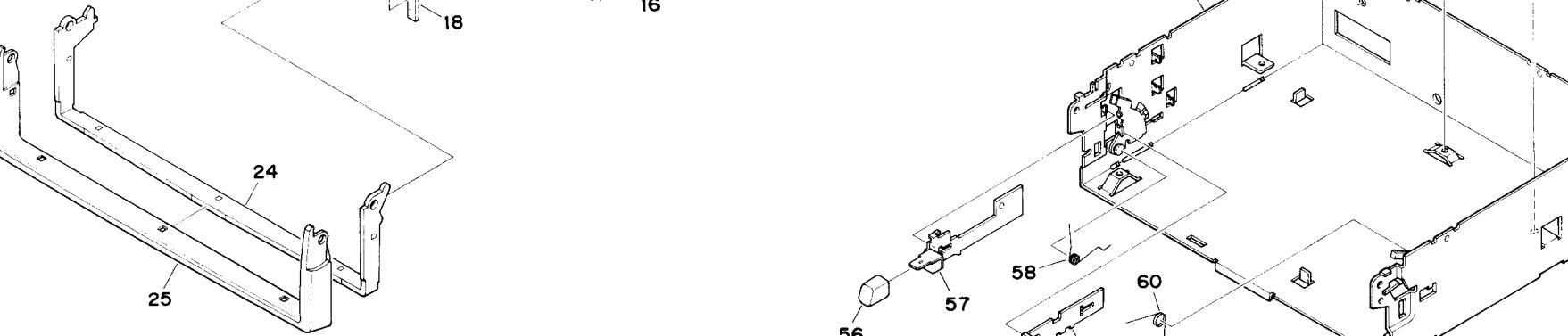


Fig. 23

**NOTES:**

- Parts marked by “\*” or “\*” are generally unavailable because they are not in our Master Spare Parts List.
- Parts marked by “◎” are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

● **Parts List (KE-1303QR/XMA/UC)**

**A**

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Box	CZN6627		36	Case	CZN5558
	2	Cord Assy	CZD2959		37	Shield	CZN5557
	3	Screw	BSZ30P050FMC		38	Plug (5P) (CN2)	CZK2928
	4	Holder Cord	CZN6625		39	Battery	CEX1014
	5	Screw	CBA1073		40	Volume (VR451, S451)	CZC2631
◎	6	Screw	CBA1002		41	Volume (VR452, 453)	CZC2633
—	7	Bush	CNV1009		42	Bracket	CZN6620
—	8	Grille Assy	CZX2974	◎	43	Insulator	CZN6644
—	9	Lens	CZN6632		44	IC (IC951)	PD4275B
—	10	Button (TUNE)	CZA2979		45	IC (IC1)	LA1883M
	11	Grille	CZN6641		46	Cushion	CZN6647
	12	Button (FUNCTION)	CZA2980	◎	47	Key Board Unit	CZW2965
	13	Button (PRESET)	CZA2978		48	Lamp (IL901, 902)	CZE2933
	14	Spring	CZB2967		49	Rubber	CZN6635
	15	Door	CZN6633		50	Bracket	CZN6626
<b>B</b>	16	Screw	CZB2921		51	LCD	CZA2987
	17	Washer	CZB2968		52	Sheet	CZN6629
	18	Cushion	CZN6645		53	Lens	CZN6634
	19	Shaft	CZN5538		54	Insulator	CZN6628
	20	Knob (FADER)	CZA2982		55	Chassis Assy	CZN6617
	21	Spring	CZA2949		56	Button (DETACH)	CZA2986
	22	Knob (VOLUME/SWITCH)	CZA2981		57	Lever	CZN2985
	23	Knob (BASS, TREBLE)	CZA2943		58	Spring	CZB2919
	24	Handle	CZN6636		59	Lever	CZN2986
	25	Cover	CZN6631		60	Spring	CZB2918
◎	26	Tuner Amp Unit	CZX2970	◎	61	Cover	CZN6619
	27	Screw	BSZ30P080FMC		62	Cassette Mechanism Assy	CZW2970
	28	IC (IC551)	TA7281P		63	Cassette Mechanism	CZX2947
	29	Connector (5P) (CN1)	CZD2952		64	Connector (5P) (CN2)	CZD2951
	30	Transister (Q911)	2SD1684		65	Button (EJECT)	CZA2985
<b>C</b>	31	Bracket	CZN6623		66	Button (REW)	CZA2984
	32	Holder	CZN6624		67	Button (FF)	CZA2983
	33	Plug (20P) (CN3)	CKS1977		68	Bracket	CZN6622
	34	Screw	BSZ26P060FMC		69	Cable Tie	CZM2901
	35	Cushion	CZN6646		70	Screw	PMZ30P040FUC
					71	Bracket	CZN6621

**D**

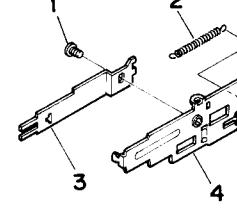
			KE-1303QR/XMA/UC	KE-1800QR/XMA/UC	KE-2800QR/XMA/ES	KE-2850QR/XMA/ES	KE-2800B/XMA/EW
Mark	No.	Description	Part No.	Part No.	Part No.	Part No.	Part No.
◎	2	Cord Assy	CZD2959	CZD2958	CZD2959	CZD2958	CZD2958
◎	8	Grille Assy	CZX2974	CZX2968	CZX2976	CZX2972	CZX2978
◎	11	Grille	CZN6641	CZN6630	CZN6642	CZN6640	CZN6643
◎	26	Tuner Amp Unit	CZW2970	CZW2961	CZW2973	CZW2966	CZW2976
	41	Volume	CZC2631	CZC2631	CZC2632	CZC2632	CZC2631
	48	Lamp	CZE2933	CZE2933	CZE2933	CZE2933	CZE2934

## 5. CASSETTE MECHANISM ASSY EXPLODED VIEW

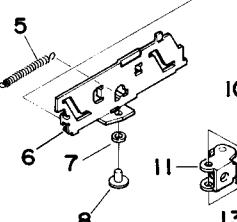
### • Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
1	Screw (M2.6x2.5)	CZB2950		46	E Ring (S2.0)	CZB2959		91	Screw	CZB2965	
2	Spring	CZB2933		47	Arm	CZN6607		92	Head (HD1)	CZX2958	
3	Lever	CZN5596		48	Screw (M2x3)	CZB2960		93	Screw	CZB2966	
4	Lever	CZN5598		49	Chassis Assy	CZN5566		94	Screw (M2x5)	CZB2951	
5	Spring	CZB2934		50	Motor Assy (M1)	CZX2959		95	Holder	CZN5571	
6	Plate	CZN5597		51	Washer (W1.5x3.2x0.5)	CZB2963		96	Washer	CZB2926	
7	Roller	CZL2911		52	Washer (W1.85x3.2x0.2)	CZB2962		97	Spring	CZB2925	
8	Roller	CZL2910		53	Gear	CZN6604		98	Screw (M2x5)	CZB2952	
9	Spring	CZB2939		54	Power Switch Assy	CZW2960		99	Washer (W2.1x4x0.4)	CZB2953	
10	Washer (W1.6x3.8x0.3)	CZB2954		55	Switch (S3) (TAPE/TUN)	CZS1912		100	Metal	CZN5568	
11	Pinch Roller Arm Assy	CZN5574		56	Screw	CZB2941		101	Washer (W10.3x14.2x0.4)	CZB2948	
12	Arm	CZN6610		57	Connector (5P) (CN1)	CZK2929		102	Gear	CZN5569	
13	Spring	CZB2938		58	Switch (S4) (MUTE)	CZS2913		103	Guide	CZN5570	
14	M.G. Plate Assy	CZX2961		59	P.C. Board	CZN5588		104	Plate	CZN5572	
15	Washer (W1.2x3x0.25)	CZB2957		60	Pulley	CZN6605		105	Roller	CZL2909	
16	Gear	CZN5578		61	Washer (W0.85x2.8x0.25)	CZB2944		106	Spring	CZB2924	
17	Gear	CZN5579		62	Spring	CZB2935		107	Head Panel Assy	CZN5567	
18	Spring	CZB2927		63	Spring	CZB2936					
19	T. Reel Assy	CZN5577		64	Plate	CZN5599					
20	Spring	CZB2928		65	Plate	CZN6609					
21	Arm	CZN5587		66	F.R. Working Plate Assy	CZX2964					
22	P. Clutch Assy	CZN5585		67	Gear	CZN6601					
23	Washer (W1.6x3.4x0.3)	CZB2958		68	Plate Semi-Assy	CZN5600					
24	Gear	CZN5580		69	Spring	CZB2937					
25	Gear	CZN5581		70	Washer (W1.85x5x0.13)	CZB2961					
26	M.G. Plate Semi-Assy	CZN5584		71	F.L. Capstan Assy	CZN6602					
27	Screw	CZB2942		72	Belt	CZN6603					
28	Screw (M2x3)	CZB2955		73	FR Lever Assy	CZX2963					
29	Gear	CZN5582		74	Spring	CZB2945					
30	E Ring (S1.5)	CZB2956		75	Lever	CZN6611					
31	Plate	CZN5586		76	Lever	CZN6612					
32	Plate	CZN5583		77	Screw (M2.6x4)	CZB2964					
33	Cassette Case Assy	CZX2962		78	Spring	CZB2947					
34	Spring	CZB2932		79	Plate	CZN6614					
35	P.E Plate Assy	CZN5590		80	Plate Assy	CZN5576					
36	Spring	CZB2930		81	F.R. Bracket Assy	CZN5575					
37	Slider	CZN5594		82	Spring	CZB2946					
38	Cushion	CZN5591		83	Plate	CZN6613					
39	Screw (M1.7x2.5)	CZB2949		84	Pinch Roller Arm Assy	CZN5573					
40	Plate	CZN5595		85	Plate	CZN6608					
41	Lifter	CZN5589		86	Arm	CZN6606					
42	Spring	CZB2929		87	Screw	CZB2940					
43	Spring	CZB2931		88	Spring	CZB2943					
44	Plate	CZN5593		89	Head Panel Assy	CZX2960					
45	Case	CZN5592		90	Switch (S2) (FWD/REV)	CZS2911					

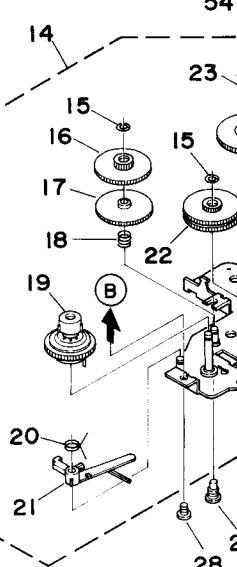
A



B



C



D



Mark	No.	Description	Part No.
	2959	Screw	CZB2965
	6607	Head (HD1)	CZX2958
	2960	Screw	CZB2966
	5566	Screw (M2x5)	CZB2951
	2959	Holder	CZN5571
	2963	Washer	CZB2926
	2962	Spring	CZB2925
	6604	Screw (M2x5)	CZB2952
	2960	Washer (W2.1x4x0.4)	CZB2953
	912	Metal	CZN5568
	2941	Washer (W10.3x14.2x0.4)	CZB2948
	2929	Gear	CZN5569
	2913	Guide	CZN5570
	5588	Plate	CZN5572
	6605	Roller	CZL2909
	2944	Spring	CZB2924
	2935	Head Panel Assy	CZN5567
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## 16. PACKING METHOD

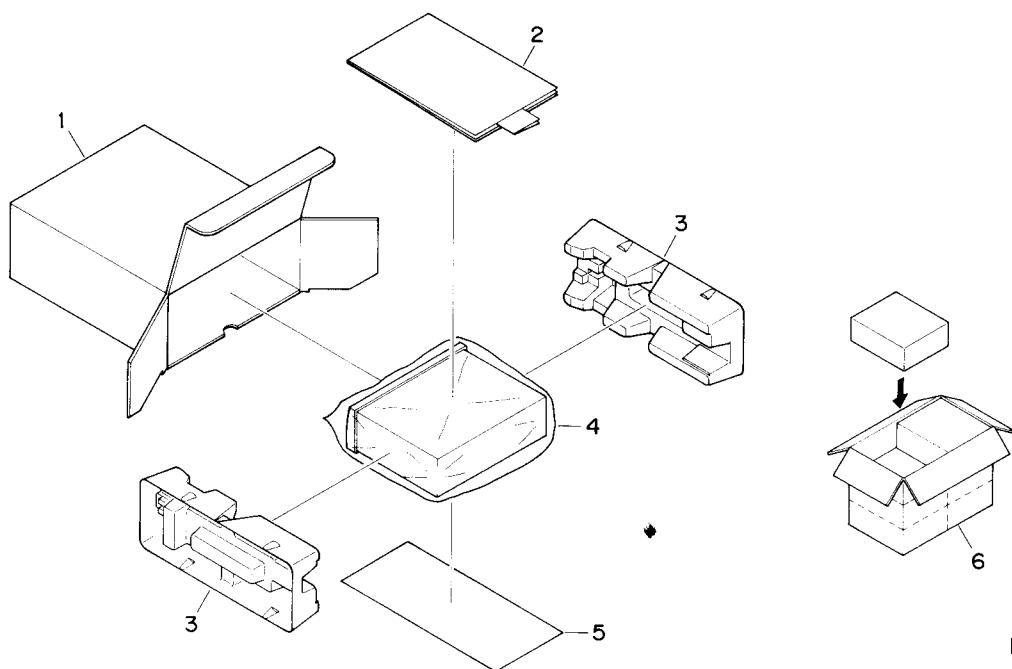


Fig. 25

## • Parts List (KE-1303QR/XMA/UC)

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Carton	CZH528		5-1-4	Bush	CNV1009
*	2	Owner's Manual	CZR2918		5-1-5	Shaft	CZN5538
*	2-1	Card	ARY1048		5-1-6	Strap	CZN2921
*	3	Protector (x2)	CZH523		6	Contain Box	CZH5529
*	4	Polyethylene Bag	CZE2903				
	5	Accessory Assy	CZE2935				
*	5-1	Polyethylene Bag	CZE2908				
	5-1-1	Screw (x1)	CBA-102				
	5-1-2	Nut (x2)	NF50FMC				
	5-1-3	Screw (x1)	CBA1002				

• The KE-1800QR/XMA/UC, KE-2800QR/XMA/ES, KE-2850QR/XMA/ES, and KE-2800B/XMA/EW Parts Lists enumerate the parts which differ from those enumerated in the KE-1303QR/XMA/UC Parts List only.

The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The KE-1303QR/XMA/UC Parts List is given on page 40.

		KE-1303QR/XMA/UC	KE-1800QR/XMA/UC	KE-2800QR/XMA/ES	KE-2850QR/XMA/ES	KE-2800B/XMA/EW
Mark	No.	Description	Part No.	Part No.	Part No.	Part No.
	1	Carton	CZH528	CZH524	CZH531	CZH5526
*	2	Owner's Manual	CZR2918	CZR2916	CZR2919	CZR2917
*	2-1	Card	ARY1048	ARY1048	.....	CRY-062
*	5	Accessory Assy	CZE2935	CZE2935	CZE2935	CZE2936
*	5-1	Polyethylene Bag	CZE2908	CZE2908	CZE2908	CZE-053
	5-1-1	Screw (x1)	CBA-102	CBA-102	CBA-102	.....
	5-1-2	Nut (x2)	NF50FMC	NF50FMC	NF50FMC	.....
	5-1-6	Strap	CZN2921	CZN2921	CZN2921	.....
	6	Contain Box	CZH5529	CZH5525	CZH5527	CZH5534

## Owner's Manual

Part No.	Language
CZR2916	English, French, Spanish
CZR2918	English, French, Spanish
CZR2917	English, French, Spanish, Arabic
CZR2919	English, French, Spanish, Arabic
CZR2920	English, French, Dutch, Spanish, Portuguese, Swedish, Finnish

## 17. ELECTRICAL PARTS LIST

## NOTE:

- Parts whose part numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

## Chip Resistor

RS1/8S □□□J, RS1/20S □□□J

Chip Capacitor (except for COS.....)  
CKS....., CCS....., CSZS.....

Unit Number:  
Unit Name: Tuner Amp Unit (KE-1303QR/XMA/UC)

Tuner Amp Unit
Consists of

## MISCELLANEOUS

Circuit Symbol & No.	Part Name	Part No.	Circuit Symbol & No.	Part Name	Part No.
IC 1		LA1883M	L 3	Coil	CTC1090
IC 251		LA3161P	L 4	Coil	CTC1092
IC 551		TA7281P	L 5	OSC Coil	CTC1024
IC 951		PD4275B	L 6	Inductor	LAU150K
Q 1	Chip Transistor	3SK195	L 201 203	Ferri-Inductor	LAU4R7K
Q 2		2SC2999	L 202	Ferri-Inductor	LAU330K
Q 3		2SA933S	L 901	Chock Coil	CTH1084
Q 151 953	Chip Transistor	2SC2412K	L 951	Ferri-Inductor	LAU101K
Q 152	Chip Transistor	DTA124EK	T 1	Coil	CTC1064
Q 153	Chip Transistor	DTC124EK	T 51	Coil	CTC1071
Q 201		2SK435	T 201	Coil	CTB1056
Q 202 451 452 502 503 522		2SC1740S	T 202	Coil	CTB1008
Q 251		2SD1992A	T 203 204	Coil	CTB1058
Q 455 456 802 803		DTC343TS	T 205	Coil	CTE1041
Q 457 913		DTC124ES	T 206	Coil	CTE1042
Q 801 952		DTA124ES	T 210	Coil	CTB1061
Q 911		2SD1684	CF 1	Ceramic Filter	CTF-182
Q 912		2SA1150	CF 51 52	Ceramic Filter	CTF1284
Q 951		DTC114ES	CF 201	Filter	CTF1085
D 1	Chip Diode	1SV128A-BB	H 1		DSP-201M
D 2 3 4	Variable Capacitance Diode	SVC203-AB	X 151	Crystal Resonator	CSS1066
D 5	Chip Diode	MA157-MR	X 951	Crystal Resonator	CZS2914
D 151		MTZJ4R3C	VR 151	Semi-fixed 150KΩ	CZC2624
D 201 202 203 204 451 452 453 454	Variable Capacitance Diode	ISSL33	VR 152	Semi-fixed 33KΩ	CZC2623
D 205		KV123Z3	VR 451	Volume 50KΩ(W)x2, 50KΩ(A)x2	CZC2631
D 252 911		MTZJ9R1B	VR 452 453	Volume 50KΩ(A)x2	CZC2633
D 456 458 459 954 958 959 960 962		ISSL33	LCD		CZA2987
D 901 902		ERA15-02VH			
D 951		MTZJ5R1B			
D 961		MTZJ5R6B			
D 963 968 970		1SS133			
D 964		RB721Q			
D 979		MTZJ8R2B			
L 1	Inductor	CTF1065			
L 2	Coil	CTC1091			

## RESISTORS

Circuit Symbol & No.
R 1 3 5 2
R 2
R 4 159 459 46
R 6 955 956 96
R 8
R 9 52
R 10 157 201 20
R 13 17
R 14 18 205
R 15
R 16
R 20 155
R 21
R 23 961 966 97
R 24
R 25 223
R 26 204 219 45
R 27
R 51 953
R 53
R 54
R 55 102 104 15
R 56
R 57 210
R 58 251 252
R 101 555 556
R 103
R 105
R 153
R 154 484 504
R 156
R 203
R 220
R 221 253 254
R 255 256
R 257 258
R 259 260
R 262 311 312 50
R 305 306
R 310 964
R 451 452 551 55
R 453 454
R 457 458
R 461 462
R 463 464
R 469 470 914
R 465 466 912
R 467 468
R 480
R 481
R 482
R 483 960
R 557 558
R 802 803
R 804 805
R 806 807
R 901
R 911
R 951 952

## 17. ELECTRICAL PARTS LIST

**NOTE:**

- Parts whose part numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

**Chip Resistor**

RS1/8S □□□J, RS1/20S □□□J

**Chip Capacitor (except for COS.....)**

CKS....., CCS....., CSZS.....

**Unit Number:**

Unit Name: Tuner Amp Unit (KE-1303QR/XMA/UC)

Tuner Amp Unit
Consists of
• Tuner Amp P. C. Board

**MISCELLANEOUS**

Circuit Symbol & No.	Part Name	Part No.	Circuit Symbol & No.	Part Name	Part No.	RESISTORS	Circuit Symbol & No.	Part Name	CAPACITORS	Part No.
IC 1		LA1883M	L 3	Coil	CTC1090	R 1 3 5 22	RS1/10S223J	C 1 3 17 203 952	CCSQCH220J50	
IC 251		LA3161P	L 4	Coil	CTC1092	R 2	RD1/4PS151JL	C 2 21 53 58 205 225 226 232	CKSQYB473K25	
IC 551		TA7281P	L 5	OSC Coil	CTC1024	R 4 159 459 460	RS1/10S333J	C 4 25 469 470	CCSQCH330J50	
IC 951		PD4275B	L 6	Inductor	LAU150K	R 6 955 956 967	RD1/4PS473JL	C 5 207 209	CCSQTH090D50	
Q 1	Chip Transistor	3SK195	L 201 203	Ferri-Inductor	LAU4R7K	R 8	RS1/10S563J	C 6	CCSQTH070D50	
Q 2		2SC2999	L 202	Ferri-Inductor	LAU330K	R 9 52	RD1/4PS563JL	C 7 202	CDSQ222K50	
Q 3		2SA933S	L 901	Chock Coil	CTH1084	R 10 157 201 202 211 456 913	RS1/10S103J	C 8 22 51 54 59 105 204 216	CKSQYB223K50	
Q 151 953	Chip Transistor	2SC2412K	L 951	Ferri-Inductor	LAU101K	R 13 17	RD1/4PS271JL	C 9	CCSQTH120J50	
Q 152	Chip Transistor	DTA124EK	T 1	Coil	CTC1064	R 14 18 205	RS1/10S561J	C 10	CCSQSL271J50	
Q 153	Chip Transistor	DTC124EK	T 51	Coil	CTC1071	R 15	RS1/10S683J	C 11 19 101 154 164 201 257 258	CKSQYB103K50	
Q 201		2SK435	T 201	Coil	CTB1056	R 16	RS1/10S474J	C 12 24	CCSQCH470J50	
Q 202 451 452 502 503 522		2SC1740S	T 202	Coil	CTB1008	R 20 155	RS1/10S182J	C 13 224	CEA3R3M50LS	
Q 251		2SD1992A	T 203 204	Coil	CTB1058	R 21	RS1/10S182J	C 14 106 165 251 252 551 552	CKSQYB102K50	
Q 455 456 802 803		DTC343TS	T 205	Coil	CTE1041	R 23 961 966 972	RD1/4PS472JL	C 15	CCSQCH100D50	
Q 457 913		DTC124ES	T 206	Coil	CTE1042	R 24	RD1/4PS682JL	C 16 18	CCSQCH120J50	
Q 801 952		DTA124ES	T 210	Coil	CTB1061	R 25 223	RS1/10S472J	C 20	CKSYB473K50	
Q 911		2SD1684	CF 1	Ceramic Filter	CTF182	R 26 204 219 455	RD1/4PS103JL	C 27 52 912	CEA101M10LS	
Q 912		2SA1150	CF 51 52	Ceramic Filter	CTF1284	R 27	RS1/10S510J	C 55 155 156 157 451 468	CEA101M50LS2	
Q 951		DTC114ES	CF 201	Filter	CTF1085	R 51 953	RS1/10S331J	C 56	CCSQCH240J50	
D 1	Chip Diode	1SV128A-BB	H 1		DSP-201M	R 53	RD1/4PS104JL	C 57 222	CEAR47M50LS2	
D 2 3 4	Variable Capacitance Diode	SVC203-AB	X 151	Crystal Resonator	CSS1066	R 54	RD1/4PS133JL	C 61 954	CKSQYB182K50	
D 5	Chip Diode	MA157-MR	X 951	Crystal Resonator	CZS2914	R 55 102 104 158 160 453 454	RS1/10S682J	C 102 206 262 563	CEA470M16LS	
D 151		MTZJ4R3C	VR 151	Semi-fixed 150KΩ	CZC2624	R 56	RD1/4PS562JL	C 103	CKSQYB182K50	
D 201 202 203 204 451 452 453 454		1SS133	VR 152	Semi-fixed 33KΩ	CZC2623	R 57 210	RS1/10S473J	C 104	CKSQYB682K50	
D 205	Variable Capacitance Diode	KV1235Z3	VR 451	Volume 50KΩ(W)x2, 50KΩ(A)x2	CZC2631	R 58 251 252	RS1/10S513J	C 151 152	CKSQYB223K50	
D 252 911		MTZJ9R1B	VR 452 453	Volume 50KΩ(A)x2	CZC2633	R 101 555 556	RS1/10S133J	C 153	CKSQYB332K50	
D 456 458 459 954 958 959 960 962		1SS133	LCD		CZA2987	R 103	RS1/10S183J	C 158 455 456	CEAR2M50LS2	
D 901 902		ERA15-02VH				R 105	RS1/10S752J	C 159	CEA0R1M50LS2	
D 951		MTZJ5R1B				R 153	RD1/4PS562JL	C 161	CEA100M16LS2	
D 961		MTZJ5R6B				R 154 484 504	RS1/10S332J	C 162 163	CKSQYB152K50	
D 963 968 970		1SS133				R 156	RS1/10S684J	C 208	CCSQCH10C50	
D 964		RB721Q				R 203	RD1/4PS513JL	C 217 230	CCSQRH101J50	
D 979		MTZJ8R2B				R 220	RD1/4PS752JL	C 218	CCSQUJ180J50	
L 1	Inductor	CTF1065				R 221 253 254	RS1/10S104J	C 227 229 501 502	CKSQYB223K50	
L 2	Coil	CTC1091				R 222	RD1/4PS220JL	C 228 467	CEA220M16LS	
						R 255 256	RS1/10S181J	C 231	CQPA431J2A	
						R 257 258	RS1/10S153J	C 253 254	CEA2R2M50LS2	
						R 259 260	RS1/10S334J	C 255 256	CEA101M10L2	
						R 262 311 312 505 582 973	RD1/4PS102JL	C 261 555 556	CEA221M10L2	
						R 305 306	RD1/4PS153JL	C 303 304 310	CEA100M16L2	
						R 310 964	RD1/4PS331JL	C 452 901	CEA010M50LS2	
						R 451 452 551 552	RS1/10S152J	C 453 454	CKSQYB333K50	
						R 453 454	RS1/10E222J	C 457 458	CKSQYB272K50	
						R 457 458	RD1/4PS182JL	C 459 460	CKSYB273K50	
						R 461 462	RS1/10E394J	C 461 462	CEA2R2M50LS2	
						R 463 464	RS1/8S222J	C 503	CSZA2R2M16	
						R 469 470 914	RS1/10S222J	C 553 554	CEA010M50L2	
						R 465 466 912	RS1/10S221J	C 557	CEA47010LS2	
						R 467 468	RD1/4PS153JL	C 558	CEA470M10LS	
						R 480	RD1/4PS332JL	C 559 560	CKSQYB104K25	
						R 481	RD1/4PS223JL	C 561 562	1000μF/10V	
						R 482	RD1/4PS392JL	C 564	CZC2630	
						R 483 960	RD1/4PS222JL	C 902 905 955	CEA471M16L2	
						R 557 558	RD1/4PS2R2JL	C 903	CKSQYB473K25	
						R 802 803	RD1/4PS390JL	C 904	CEA331M16LS	
						R 804 805	RD1/4PS751JL	C 911	CEHAQ472M16	
						R 806 807	RD1/2PS220JL	C 951	CZC2634	
						R 901	RS1/2P3R3JL	C 956 957	CCSQCH180J50	
						R 911	RS1/10S471J		CEA221M101LS	
						R 951 952	RD1/2PS331JL			

# KE-1303QR/1800QR/2800QR/2850QR/2800B

- The KE-1800QR/XMA/UC, KE-2800QR/XMA/ES, KE-2850QR/XMA/ES, and KE-2800B/XMA/EW Parts Lists enumerate the parts which differ from those enumerated in the KE-1303QR/XMA/UC Parts List only.
- The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly.
- The KE-1303QR/XMA/UC Parts List is given on page 41.

Tuner Amp Unit	KE-1303QR/XMA/UC	KE-1800QR/MXA/UC	KE-2800QR/MXA/ES	KE-2850QR/MXA/ES	KE-2800B/XMA/EW
Symbol & No.	Part No.	Part No.	Part No.	Part No.	Part No.
Q 802 803	.....	DTC343TS	DTC343TS	.....	DTC343TS
D 950	.....	.....	.....	.....	1SS133
D 952	.....	.....	1SS133	1SS133	.....
D 954	ISS133	ISS133	.....	.....	.....
VR451	CZC2631	CZC2631	CZC2632	CZC2632	CZC2631
R 56	RD1/4PS562JL	RD1/4PS562JL	RD1/4PS183JL	RD1/4PS183JL	RD1/4PS183JL
R 467 468	RD1/4PS153JL	RD1/4PS153JL	RD1/4PS103JL	RD1/4PS103JL	RD1/4PS103JL
R 471 472	.....	.....	RS1/10S222J	RS1/10S222J	.....
R 802 803	.....	RD1/4PS390JL	RD1/4PS390JL	.....	RD1/4PS390JL
R 804 805	.....	RD1/4PS751JL	RD1/4PS751JL	.....	RD1/4PS751JL
R 806 807	.....	RD1/2PS220JL	RD1/2PS222JL	.....	RD1/2PS220JL
C 151 152	CKSQYB223K50	CKSQYB223K50	CKSQYB153K50	CKSQYB153K50	CKSQYB153K50
C 463 464	.....	.....	CEAR22M50LS2	CEAR22M50LS2	.....

Unit Number :

Unit Name : Key Board Unit

## MISCELLANEOUS

Circuit Symbol & No.	Part Name	Part No.
1L 901 902	Lamp 14V 40mA (KE-1303QR, 1800QR, 2800QR, 2850QR)	CZE2933
	Lamp 14V 40mA (KE-2800B)	CZE2934

Unit Number :

Unit Name : P.C. Board (A)

Circuit Symbol & No.	Part Name	Part No.
S 2	Switch (FWD/REV)	CZS2911

Unit Number :

Unit Name : P.C. Board (B)

Circuit Symbol & No.	Part Name	Part No.
S 3	Switch (TAPE/TUN)	CZS2912
S 4	Switch (MUTE)	CZS2913

## Miscellaneous Parts List

Circuit Symbol & No.	Part Name	Part No.
M 1	Motor Assy	CZX2959
HD 1	Head	CZX2958

# KE-1303QR/1800QR/2800QR/2850QR/2800B

## 18. SPECIFICATIONS

### KE-1303QR/KE-1800QR

#### General

Power source . . . . .	14.4 V DC (10.8 — 15.6 V allowable)
Grounding system . . . . .	Negative type
Max. current consumption . . . . .	2.5 A
Dimensions (chassis) . . . . .	178(W) x 50(H) x 141(D) mm [7(W) x 2(H) x 5-1/2(D) in.]
(nose) . . . . .	188(W) x 58(H) x 17.5(D) mm [7-3/8(W) x 2-1/4(H) x 3/4(D) in.]
(mounting bracket) . . . . .	182(W) x 52(H) x 152.5(D) mm [7-1/8(W) x 2(H) x 6(D) in.]
Weight . . . . .	1.3 kg (2.9 lbs.)

#### Amplifier

Continuous power output is 3.2 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.	
Maximum power output . . . . .	8.5 W x 2 / 7 W x 4 (EIAJ)
Load impedance . . . . .	4Ω (4 — 8Ω allowable)
Preout output level / output impedance . . . . .	.500 mV/1 kΩ
Tone controls (bass) . . . . .	±10 dB (100 Hz)
(treble) . . . . .	±10 dB (10 kHz)

#### Tape player

Tape . . . . .	Compact cassette tape (C-30 — C-90)
Tape speed . . . . .	4.76cm/sec. (+0.14cm/sec. -0.05cm/sec.)
Fast forward / rewind time . . . . .	Approx. 100 sec. for C-60
Wow & flutter . . . . .	0.13% (WRMS)
Frequency response . . . . .	40 — 14,000 Hz (±3 dB)
Stereo separation . . . . .	45 dB
Signal-to-noise ratio . . . . .	52 dB (IHF-A network)

### KE-2800QR/KE-2850QR/KE-2800B

#### General

Power source . . . . .	14.4 V DC (10.8 — 15.6 V allowable)
Grounding system . . . . .	Negative type
Max. current consumption . . . . .	2.5 A
Dimensions (chassis) . . . . .	178(W) x 50(H) x 141(D) mm [7(W) x 2(H) x 5-1/2(D) in.]
(nose) . . . . .	188(W) x 58(H) x 17.5(D) mm [7-3/8(W) x 2-1/4(H) x 3/4(D) in.]
(mounting bracket) . . . . .	182(W) x 52(H) x 152.5(D) mm [7-1/8(W) x 2(H) x 6(D) in.]
Weight . . . . .	1.3 kg

#### Amplifier

Continuous power output is 3.2 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.	
Maximum power output . . . . .	8.5 W x 2 / 7 W x 4 (EIAJ)
Load impedance . . . . .	4Ω (4 — 8Ω allowable)
Tone controls (bass) . . . . .	±10 dB (100 Hz)
(treble) . . . . .	±10 dB (10 kHz)
Loudness contour . . . . .	+8 dB (100 Hz) (Volume: -30 dB)

#### Tape player

Tape . . . . .	Compact cassette tape (C-30 — C-90)
Tape speed . . . . .	4.76cm/sec. (+0.14cm/sec. -0.05cm/sec.)
Fast forward / rewind time . . . . .	Approx. 100 sec. for C-60
Wow & flutter . . . . .	0.13% (WRMS)
Frequency response . . . . .	40 — 14,000 Hz (±3 dB)
Stereo separation . . . . .	45 dB
Signal-to-noise ratio . . . . .	52 dB (IEC-A network)

#### FM tuner

Frequency range . . . . .	87.9 — 107.9 MHz
Usable sensitivity . . . . .	11 dBf (1.0 μV/75Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity . . . . .	16 dBf (1.0 μV/75Ω, mono)
Signal-to-noise-ratio . . . . .	70 dB (IHF-A network)
Distortion . . . . .	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response . . . . .	30 — 15,000 Hz (±3 dB)
Stereo separation . . . . .	40 dB (at 65 dBf, 1 kHz)
Selectivity . . . . .	70 dB (2ACA) (±400 kHz)
Three-signal intermodulation (desire signal level) . . . . .	55 dBf (two undesire signal level: 110 dBf)

#### AM tuner

Frequency range . . . . .	530 — 1,710 kHz
Usable sensitivity . . . . .	18 μV (25 dB) (S/N: 20 dB)

*These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.*

#### Note:

Specifications and the design are subject to possible modification without notice due to improvements.

#### FM tuner

Frequency range . . . . .	87.5 — 108 MHz
Usable sensitivity . . . . .	11 dBf (1.0 μV/75Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity . . . . .	16 dBf (1.0 μV/75Ω, mono)
Signal-to-noise-ratio . . . . .	70 dB (IEC-A network)
Distortion . . . . .	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response . . . . .	30 — 15,000 Hz (±3 dB)
Stereo separation . . . . .	40 dB (at 65 dBf, 1 kHz)

#### AM tuner [MW tuner]

Frequency range . . . . .	531 — 1,602 kHz (9 kHz) 530 — 1,710 kHz (10 kHz)
Usable sensitivity . . . . .	18 μV (25 dB) (S/N: 20 dB)

Selectivity . . . . . 50 dB (±9 kHz)

50 dB (±10 kHz)

#### Note:

Specifications and the design are subject to possible modification without notice due to improvements.